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THE

VETERINARY BULLETIN

Vol. 26] February, 1956 [No. 2

DISEASES CAUSED BY BACTERIA AND FUNGI

I. VAN ESELTINE, W. P. (1955). **On the inadvisability of separating the genera *Micrococcus* and *Staphylococcus*.—***Int. Bull. bact. Nom. Taxon.*** **5,** 53-60. **330**

II. EVANS, J. B., BRADFORD, W. L., JR. NIVEN, C. F., JR. (1955). **Comments concerning the taxonomy of the genera *Micrococcus* and *Staphylococcus*.—***Ibid.*** 61-66. [Authors' summaries modified.] **331**

I. Previous workers had shown that on the basis of the characteristics now used in their classification, the organisms of the micrococcus-staphylococcus group cannot be separated into species (or genera) except in a purely arbitrary and artificial manner.

A reappraisal of the only available study [Hucker, G. J. (1924). *N.Y. State Agric. exp. Sta. Bull.* 102] giving complete results for all strains revealed that in respect of utilization of ammonium phosphate and asparagine as sole nitrogen sources, these organisms constitute a continuous series which includes every conceivable combination of characters, and that there are no gaps which might be utilized for lines of demarcation between species or genera. van Eseltine concluded that separation of the genera *Micrococcus* and *Staphylococcus* at the present time is unwise. He suggested that *Micrococcus* Cohn 1872 would be the correct generic name for these organisms provided only that a type culture could be found which would conform to the original description of the type species, *M. luteus* (Schroeter) Cohn. The strain designated "American Type Culture Collection (ATTC) No. 398" cannot serve as type culture if, as stated by Gibson, it fails to grow in media containing ammonium tartrate as the sole source of nitrogen, carbon, and energy.

II. *Micrococcus luteus* is a recognizable species and ATCC culture 398 appears to be a satisfactory type culture. The authors considered that the ability to utilize ammoniacal nitrogen as a sole source of nitrogen is not a test applicable to this group of organisms, because it cannot be studied independently of the energy metabolism and nutritional requirements for growth. The genera *Micrococcus* and *Staphylococcus* can be separated logically on the basis of their relationship to oxygen in a standardized complex medium containing glucose. The former are obligate aerobes and the latter are facultative. *Staph. pyogenes* is an extremely homogeneous species and the type culture suggested by Cowan *et al.* [*V.B.* **24,** 2161] appears quite satisfactory.

PULSFORD, M. F. (1955). **The comparative efficiency of a new spot test for the detection of *Streptococcus agalactiae* in milk samples.—***Aust. J. agric. Res.* **6,** 786-795. [Author's summary modified.] **332**

Five methods for the detection of *Str. agalactiae* in milk samples were examined with special reference to their use as direct and indirect tests. Comparison was made of the sensitivity of these tests in detecting excretor cows. In the consideration of methods as direct tests particular attention was paid to their value for screening out frankly negative samples with the minimum amount of work. A newly developed test, the "spot" test, based on the CAMP reaction [*V.B.* 16, 1015], was found to be highly sensitive as well as economical, and this is recommended for use under South Australian conditions.

NEGRETTI, F. (1955). Un metodo rapido per la tipizzazione dei ceppi di "Strep. agalactiae". [**A rapid method for typing strains of *Str. agalactiae*.**]—*Arch. Vet. Ital.* **6,** 107-115. [English, French, German and Spanish summaries.] **333**

N. describes a simple slide agglutination test for typing *Str. agalactiae*, using sera

diluted on the basis of their agglutinating ability. He claims to be able to place the strains in their types and subtypes in from 5 to 20 min. by this method, using from 3 to 7 agglutinations.—I. W. JENNINGS.

ANON. (1955). **A method for the eradication of *Str. agalactiae*.**—*Vet. Rec.* **67,** 410-411. **334**

An outline of a practical routine for freeing and maintaining a herd free from *Str. agalactiae* by the use of procaine penicillin in mineral oil, as follows:— Two treatments (each of 100,000 units, with a 3-day interval) of all quarters of infected and dry cows; disinfection, before the milking of each cow, of the teat surface and of the milker's hands (or dipping of teat clusters); bacteriological culture of individual milk samples half-yearly from 6 weeks after treatment, and once a year after the second negative culture; re-treatment of all positive cows, these being milked last; disposal of cows resistant to treatment; immediate treatment of newly purchased cows.

—A. SEAMAN.

COOPER, K. E. & RAMADAN, F. M. (1955). **Studies in the differentiation between human and animal pollution by means of faecal streptococci.**—*J. gen. Microbiol.* **12,** 180-190. [Authors' summary copied *verbatim*.] **335**

The isolation of faecal streptococci from the excreta of man, cattle and sheep was investigated. The methods compared were (a) heat, (b) tetrathionate, (c) tellurite, (d) thallium salts. The tellurite method proved highly efficient, isolating 97% of strains from human, cow and sheep faeces. A survey of the properties of strains isolated was made. Differential tests based on (a) heat resistance and (b) reducing properties were devised; these divided the streptococci isolated by the tellurite method into groups, some of which were characteristic of the source. The information available seems capable of distinguishing many strains obtained from man from those derived from cows or sheep, and it is suggested it may be of use in tracing sources of pollution in water, milk and other foodstuffs.

SMITH, H., KEPPIE, J., & STANLEY, J. L. (1955). **The chemical basis of the virulence of *Bacillus anthracis*. V. The specific toxin produced by *B. anthracis in vivo*.**—*Brit. J. exp. Path.* **36,** 460-472. [Authors' summary slightly modified.] **336**

B. anthracis produces a toxin *in vivo* which is responsible for the death of the host. The toxin is found mainly in the plasma of g. pigs dying of anthrax. It produces oedema in the skin, and kills mice and g. pigs when injected i/v. Oedema production and lethal effect are due to the same toxic substance, and both effects are specifically neutralized by anthrax antiserum. The toxin appears to be in no way connected with the capsular substance of *B. anthracis* or with polyglutamic acid. There is a close relationship between it and non-toxic protective antigens. The cause of death in g. pigs dying after injections of the anthrax toxin is secondary shock: a syndrome identical with that occurring in anthrax.

AUERBACH, S. & WRIGHT, G. G. (1955). **Studies on immunity in anthrax. VI. Immunizing activity of protective antigen against various strains of *Bacillus anthracis*.**—*J. Immunol.* **75,** 129-133. [Authors' summary modified. For previous parts, see *V.B.* **21,** 3448; **22,** 306, **24** 3010 & **25,** 2650.] **337**

Antigen elaborated by a non-proteolytic, non-encapsulated mutant of the Vollum strain of *B. anthracis* effectively immunized rabbits against challenge with 35 strains of varied origin. In g. pigs, although protection against heterologous challenge was obtained in most cases, fatal infection occurred following challenge of immunized animals with several of the strains. Antigens elaborated by two of the latter strains, however, were no more effective in immunization against homologous challenge than was antigen elaborated by the Vollum mutant.

—. (1955). XIII Conferencia de la Unión Internacional contra la Tuberculosis. Symposium sobre tuberculosis animal. **[XIIIth Conference of the International Union against Tuberculosis, Madrid, 1954. Symposium on TB. in animals.]**—*Cienc. vet.* (*Rev.*) **16,** 1-66. **338**

At this conference, delegates gave talks on bovine TB. and its eradication in Turkey, Holland, Switzerland, France, Germany, Denmark and Italy, and on tuberculin. General conclusions were that eradication should be based on the use of the i/d test, with P.P.D.; the slaughter of reactors, whether "open" or "closed"; and the gradual expansion of TB.-free zones until the entire country is covered. Vaccination is not recommended. It is important that all personnel dealing with cattle, milk and milk products should be free from TB.

—I. W. JENNINGS.

TANEJA, G. C. (1955). **A note on the incidence of tuberculosis in zebu (Hariana) cattle in the Punjab (India).**—*Indian vet. J.* **31,** 249-259 **339**

Of 102 Hariana cattle in a "gowshala" in the Punjab 27 were positive and 5 doubtful reactors to the double-intradermal tuberculin test. The largest percentage of reactors was in the 4–9-year age group. Since "gowshalas" harbour many scrub cattle, these results were not considered typical of Indian herds. [A gowshala is a place where old or otherwise unwanted cattle are maintained until they die from natural causes.]—R. N. MOHAN.

NEUMANN, H.-J. (1955). Die intrakutane Tuberkulinprobe beim Rind und ihre Beeinflussbarkeit durch Antihistamine. **[Effect of antihistamines on the tuberculin test in cattle.]**—*Berl. Münch. tierärztl. Wschr.* **68,** 293-297. [English summary.] **340**

After a review of the literature, N. reported experiments on the influence of the antihistamine "soventol" (4-N-benzylanilino-1-methyl piperidine) on the intensity of reactions to tuberculin. Tests on more than 300 cattle revealed that neither local administration nor intramuscular or intradermal injections of "soventol" are capable of influencing the amplitude of positive tuberculin reactions.—F. K. LEEB.

KNOX, R. (1955). **Semi-solid agar media for rapid culture of tubercle bacilli.**—*Lancet.* **269,** 110-115. [Author's summary modified.] **341**

Profuse and rapid growth of tubercle bacilli was consistently obtained on Kirschner or Dubos media made semi-solid by the addition of agar in a final conc. of about 0·1%. With large final inocula growth was easily visible in 2–3 days, while with small inocula discrete colonies could be counted in 7–10 days.

FRANCIS, J. (1955). **Use of the mouse for detection of small numbers of tubercle bacilli.** [Correspondence.]—*Nature Lond.* **175,** 344-345. **342**

Human or bovine type strains were readily detectable in smears from the black foci resulting from s/c injection of a 1% serum emulsification of growth from Loewenstein's medium (with admixed carbon as marker). The smears were positive from 2 weeks after injection for at least 6 weeks, but with saprophytic acid-fast bacilli the numbers decreased at 4 weeks.—A. SEAMAN.

KETZ, A. (1955). Ein Beitrag zur Epidemiologie der bovinen Tuberkulose: Tuberkelbakterien im Stallmilieu tuberkulinpositiver Rinder. **[Tubercle bacilli in byres housing tuberculin-positive cattle.]**—*Berl. Münch. tierärztl. Wschr.* **68,** 335-337. [English summary.] **343**

Tests were made in a stall containing 12 cattle, all positive reactors, but clinically and bacteriologically negative. Of 82 samples of material taken from the stall, 3 of straw, 2 of dust and one milk sample contained virulent tubercle bacilli.—M.G.G.

REUSS, U. (1955). Tuberkelbakterien im Kot tuberkulin-positiver Rinder und ihre weidehygienische Bedeutung. **[Occurrence of tubercle bacilli in the faeces of tuberculin-positive cattle and its significance in pasture hygiene.]**—*Rindertuberkulose.* **4,** 53-58. **344**

R. isolated virulent tubercle bacilli from 11 of 110 faeces samples collected on pasture from cattle of 3 herds, each of which had a high percentage of positive reactors, but clinical symptoms were absent. He stated that even under unfavourable climatic conditions the bacilli remained viable for 8 weeks. Separation of positive from negative reactors on pasture and ensiling of green fodder were recommended as control measures.—E.G.

KÖSER, A. (1954). Tukerkulose und Abwasserhygiene. **[TB. and sewage hygiene.]**—*Rindertuberkulose.* **3,** 165-176. **345**

K. found tubercle bacilli in sewage water and in waste water from dairies. Such water could safely be used for irrigating cattle pasture provided that it was first cleared by sedimentation, and that an interval of 12 days was left after irrigation.—A.S.

KOLLMANN, O. (1955). Erfahrungsbericht über die Einrichtung und Führung von gemeinsamen Aufzuchtstationen für tuberkulosefreies Jungvieh in Nordwürttemberg. **[Experiences on the management of communal rearing stations for TB.-free calves in North Württemberg.]**—*Rindertuberkulose.* **4,** 146-150. **346**

An account of the successful establishment of 4 communal rearing stations and of their value to the small-holder with limited space who is unable to keep calves separate from cattle that are positive reactors.—M.G.G.

OLDENBURG, F. & VON HEIN, D. (1955). Die hygienische Beschaffenheit der Rückgabemagermilch im Zusammenhang mit der tuber-

kulosefreien Milchvieh-Aufzucht. **[Skim milk and rearing of TB.-free dairy calves.]**—*Arch. Lebensmittelhyg.* **6,** 208-209. **347**

The authors claimed that there is no danger in rearing calves on skim milk from cows infected with TB., provided that the milk is pasteurized correctly and that the cans containing the raw milk are cleaned and disinfected. As an example they cited the Hanover area where over 50% of the raw milk is infected, yet calves reared on the pasteurized skim milk have not developed TB.

—M.G.G.

MANNINGER, R. & KEMENES, F. (1955). Immunisierungsversuche gegen die Rindertuberkulose mit dem gräubschen Bakterienstamm. II. **[Immunization against TB. in cattle with Strain P as described by Gräub. II.]**—*Acta vet. hung.* **5,** 289-298. [In German. Russian summary.] **348**

Cattle vaccinated with cultures of the attenuated bovine Strain *P* of tubercle bacillus described by Gräub [*V.B.* **25,** 1256] at half-yearly or yearly intervals, and exposed to natural infection by contact, remained free from TB. during the first two years, but not after 34–45 months.—W. R. BETT.

SEELEMAN, M. & RACKOW, H.-G. (1955). Zur Allergie bei Infektionen mit verschiedenen Mykobakterien. **[Allergy in infection with various mycobacteria.]**—*Rindertuberkulose.* **4,** 153-171. **349**

Several groups of g. pigs and calves were infected (parenterally and orally) with various saprophytic mycobacteria *(M. lacticola, M. phlei),* and with virulent avian type tubercle bacilli. Allergic reactions can be produced with autologous as well as with heterologous types of tuberculin; this suggests the existence of a close relationship between the "allergic substances" in the avian type tubercle bacillus and in *M. lacticola* and *M. phlei.* Only the autologous "volein"-tuberculin produced a strictly specific reaction with the pathogenic "vole" bacillus.

Differences of less than 3 mm. in the thickness of the skin folds between the avian type and the mammalian type tuberculin reaction may be significant for infection with avian type tubercle bacilli, and monovalent bovine and human type tuberculin, in many but not in all cases, is useful for a differential diagnosis of these two types of infection.

—F. K. LEEB.

BEHRENS, H. (1955). Die Paratuberkulose des Schafes. **[Johne's disease in sheep.]**—*Dtsch. tierärztl. Wschr.* **62,** 129-134. **350**

Johne's disease has been diagnosed in a number of flocks of sheep in Western Germany. Symptoms and pathology are described. As a control measure lambs, 2–4 weeks old, were vaccinated s/c in the side of the chest with half an ampoule each of a live vaccine obtained from Weybridge. No unfavourable reactions were observed, but final results of the protective power of these vaccinations are not yet available.

—W. G. SILLER.

WEAVER, A. D. (1955). **Summer mastitis: a survey.**—*Vet. Rec.* **67,** 735-736 & 737. [Author's summary copied *verbatim.*] **351**

A total of 116 cases of "summer mastitis" was studied both clinically and bacteriologically. It appeared impossible to distinguish clinically between "summer mastitis" caused by *C. pyogenes* and other forms of acute mastitis.

SERONDE, J. JR., ZUCKER, L. M. & ZUCKER, T. F. (1955). **The influence of duration of pantothenate deprivation upon natural resistance of rats to a corynebacterium.**—*J. infect. Dis.* **97,** 35-38. [Authors' summary modified.] **352**

In further studies [see also *V.B.* **25,** 23] it was found that young rats deprived of pantothenate gradually lose their natural species-resistance to the *Corynebacterium* previously described. The dependence of this natural resistance upon pantothenate is influenced by the genetic constitution of the animals.

ZELJIKO, M. & BAŠ-LUKETIĆ, L. (1954). Metoda konglutinacije u dijagnostici sakagije. **[The conglutination test for the diagnosis of glanders.]**—*Vet. Arhiv.* **24,** 52-55. [In Croat. English and German summaries. Abst. from English summary.] **353**

The conglutination test for glanders was applied in a modified form—using two per cent instead of five per cent r.b.c. It was considered of value for the routine examination of mule sera, of horse sera containing non-specific complement-fixing antibodies and also for use in conjunction with the c.f. test in the case of horse sera.—T.E.G.R.

BERGMANN, J. (1955). Versuche zur fermentativen Reinigung des Rotlauf-Adsorbatimpfstoffes. **[Studies on enzymic purification of**

swine erysipelas adsorbed vaccine.]—*Zbl. VetMed.* **2,** 359-367. [English, French and and Spanish summaries.] **354**

Surplus protein cannot be removed from swine erysipelas adsorbed vaccine by the use of trypsin, pepsin, or papain, which destroy the antigen complex of *E. rhusiopathiae.* Pepsin is, however, useful for digesting normal horse serum added to the nutrient broth employed for vaccine production, and a medium is obtained which is low in protein, sterilizable by heat, and free from anaphylactogenic properties, but which retains the factors necessary for rapid growth and formation of antigen.—W. R. Bett.

Geurden, L. M. G. & Devos, A. (1955). **Investigations on some properties of** *Listerella monocytogenes.*—*Leeuwenhoek ned. Tijdschr.* **21,** 169-176. [In English. French summary.] **355**

An account of the biochemical and antigenic properties of 4 strains of *Erysipelothrix (Listeria) monocytogenes* isolated from cattle and 2 strains isolated from fowls. In experimentally infected rabbits, monocytosis was first observed about 6 days after infection. Sulphanilamide, sulphadimidine, penicillin or aureomycin, each at a conc. of 0·01%, inhibited growth but did not kill the organism *in vitro.*—R.M.

Bain, R. V. S. & Jones, R. F. (1955). **Studies on haemorrhagic septicaemia of cattle . III. Production of adjuvant vaccine.**—*Brit. vet. J.* **111,** 30-34. [Authors' summary modified.] **356**

The authors described methods for the production of haemorrhagic septicaemia oil adjuvant vaccine. They claimed that by these methods a modestly-equipped laboratory could produce enough vaccine for extensive field trials.—A.S.

Johnson, W. P., Gouge, H. E. & Alson, M. C. (1955). **Tetracycline therapy of shipping fever in cattle, swine, and sheep.**—*Vet. Med.* **50,** 448-450. [Abst. from authors' summary.] **357**

Twelve cattle, 22 pigs, and 15 sheep with "shipping fever" (*Pasteurella* infection) were treated with tetracycline, by i/m injection, 2 mg./lb. body wt. Seven of the cattle recovered after a single inj. and 4 more cattle, 21 of the pigs, and 11 of the sheep after a second inj. 24 hours later.

Osmetti, E. (1955). Un focolaio primario di broncopolmonite pasteurellare nei suini. Il trattamento vaccinale preventivo con un vaccino a germi vivi. **[A live vaccine for the control of broncho-pneumonia in pigs, caused by** *Pasteurella.***]**—*Clin. vet., Milano.* **78,** 242-246. **358**

For the prevention of pasteurella broncho-pneumonia in pigs, the author recommends the use of live attenuated vaccine, given in three doses. The first dose is given along with pasteurella antiserum, the next two doses are given alone, 10 and 28 days later. Vaccinated pigs put on weight much more rapidly than the unvaccinated controls, which have poor appetite, chronic cough, and retarded development.—I. W. Jennings.

Smith, H. Williams. (1955). **The chemotherapy of experimental fowl cholera in fowls** (*Gallus domesticus*).—*J. comp. Path.* **65,** 309-316. [Author's conclusions modified.] **359**

Oxytetracyline (terramycin) given intramuscularly was superior to penicillin, procaine penicillin, dihydrostreptomycin, chloramphenicol, chlortetracycline (aureomycin) and quinoxaline-1 : 4-D_1-N-oxide in the treatment of experimental *Pasteurella septica* infection in chickens. Poorer results were obtained with sulphamerazine and sulphadimidine than with all these agents. Furazolidone was of no value.

One i/m injection of terramycin, 25 mg./kg., was usually sufficient to cure the disease in chickens infected i/m either 6 or 24 hours previously.

The continuous administration of sulphamerazine and sulphadimidine, 0·2% in the mash or 0·1% in the drinking water was very effective in controlling the disease when it was commenced before infection.

Bakos, K. (1955). Studien über *Haemophilus suis* mit besonderer Berücksichtigung der serologischen Differenzierung seiner Stämme. **[A study of** *H. suis,* **with special reference to the serological differentiation of strains.]** — *Thesis, Stockholm.* pp. 79. [In German. English summary.] **360**

An analysis is presented of 140 strains of *H. suis,* 43 from cases of Glässer's disease, 89 from virus pneumonia, and 8 from healthy pigs. Three cultural growth forms are described: S-I, S-II, and R. These have no morphological peculiarities. There is no correlation between pathogenicity, cultural-morphological behaviour, and origin of strains. The S strains have a species-specific precipitinogen in common. Variant-specific fractions

of precipitinogen are obtained with absorbed sera. From these fractions the 140 strains can be classified into 5 groups (A—D, and N). Indirect haemagglutination tests on *H. suis* extracts reveal an erythrocyte-sensitizing thermostable, filtrable, serologically group-specific substance. The majority of strains have broad spectrum haemagglutinative activity. Serological diagnosis of present or past *H. suis* infection can be established only by demonstrating species-specific precipitinogen.—W. R. Bett.

Weidlich, N. (1955). Seltener Verlauf einer Pyoseptikum-Infektion bei einem dreijährigen Hengst (Rhinitis mit anschliessender Meningitis). [*Bacterium viscosum equi* **rhinitis and meningitis in a young stallion.**]—*Berl. Münch. tierärztl. Wschr.* **68,** 303-305. [English summary.] **361**

W. reports an unusual case of unilateral rhinitis in a young stallion caused by *Bact. viscosum equi.* After responding initially to treatment with sulphonamides and antibiotics, the animal developed cerebral symptoms on the 9th day and had to be destroyed 3 days later. P.M. examination revealed necrotic ulceration of the nasal mucosa, a perforating extradural abscess and circumscribed suppurative leptomeningitis. Cultures from the various lesions demonstrated a preponderance of *Bact. viscosum equi,* which is believed to have reached the subdural space *via* the lymphatic vessels.—F. K. Leeb.

Baier, W. (1955). Die Bedeutung des Bacterium coli bei Erkrankungen der Geschlechtsorgane und der Milchdrüse. [**Significance of *Bact. coli* in diseases of the genital system and mammary gland.**] — *Wien. tierärztl. Mschr.* **42,** 273-287. [English, French and Italian summaries.] **362**

Bact. coli is common in puerperal infections of the cow, particularly those associated with retention of the placenta, in endometritis and pyometra of the bitch, and in infections of the male genital organs. Intramammary inoculation of living atoxic bacilli produces transient irritation; killed toxic bacilli cause a severe, reversible mastitis. Trauma is a predisposing factor.
—W. R. Bett.

Gomes, J. F. (1955). Colibacilose em pintos. [*Bact. coli* **infection in chicks.**]—*Rev. Ciênc. vet., Lisboa.* **50,** 188-190 [In Portuguese. French summary.] **363**

Deaths in day-old chicks, following transportation by plane, were attributed to *Bact. coli* septicaemia. Laboratory tests in mice and g. pigs confirmed the virulence of the organism.
—I. W. Jennings.

Prokůpek, K. (1955). Výskyt Salmonella gallinarum u telat. [**Occurrence of *Salmonella gallinarum* in calves.**]—*Vet. Čas.* **4,** 57-58. [In Czech. English and Russian summaries.] **364**

An account of the isolation of *S. gallinarum* from the kidneys, spleen, liver and bile of two young calves slaughtered on account of gastro-enteritis and pneumonia respectively.
—E.G.

Biggi, P. & Sessi, P. (1954). Ricerche sui cani portatori di salmonelle. [**Salmonella carriers in dogs.**]—*Ann. Fac. Med. vet. Pisa.* **7,** pp. 110-123. [English and French summaries.] **365**

S. typhi-murium was isolated from the faeces of only one out of 100 stray dogs in Pisa and Carrara.—R.M.

I. Dyssegaard, A. (1955). **Studies on myocarditis in salmonella infections.**—*Nord. Vet-Med.* **7,** 667-684. [In English. German and Danish summaries.] **366**

II. Dyssegaard, A. (1955). **Studies on synergism: Danysz myocarditis-scillirodise intoxication.**—*Ibid.* 685-687. [In English. German and Danish summaries.] **367**

I.—In *Salmonella* infections of rats and mice, severity of lesions (myocarditis) is correlated with duration of the disease, but not with virulence of the strain. *S. typhi-murium* produced inflammation in the lungs, kidneys and liver, but *S. enteritidis* infections were often more violent.

II.—There is synergism between "ratin" (containing *S. enteritidis* var. *danysz,* and causing myocarditis) and "ratinin" (a red squill cardiac toxin).—F. R. Paulsen.

Seele, W. (1955). *Salmonella anatum* als Ursache eines Massensterbens in einem Gänsekükenbestand. [*S. anatum* **causing death in goslings.**] — *Arch. Lebensmittelhyg.* **6,** 201-202. **368**

From a flock of 140 goslings 115 died, 60 within three days. Death was preceded by inappetence, frothy, whitish faeces, foamy discharge from the beak, and paralysis. *S. anatum* was isolated from the heart, liver and spleen of two of the dead goslings. The source of the outbreak was not established but it is

stated that latently infected adult geese, kept on the same farm, may have acted as carriers.
—E.G.

SCHNAUDER, G. (1955). Tierexperimente zur Frage der epidemiologischen Bedeutung der L-Formen. **[Animal experiments on the question of the epidemiological significance of L-forms of bacteria.]**—*Z. Hyg. InfektKr.* **141,** 404-410. **369**

An acute general infection was set up in mice by the oral administration of L forms of *Salmonella typhi-murium,* but mortality was less than that in mice similarly infected with normal organisms. Pure cultures of *S. typhi-murium* were obtained from the faeces of mice which died from infection with the L forms. The immunizing action of these forms was less than that of normal forms.
—R.M.

DEOM, J. & MORTELMANS, J. (1955). Le rôle des *Salmonella* pathogènes pour l'homme et les animaux domestiques dans la paratyphose des volailles au Congo Belge. **[*Salmonella typhi-murium* infection in fowls.]**—*Ann. Soc. belge Méd. trop.* **35,** 1-4. [In French. English and Flemish summaries. English summary modified.] **370**

An account of the first reported occurrence of *S. typhi-murium* in fowls in the Belgian Congo. The authors described two strains isolated in Elizabethville and discussed the possibility of contamination for man and domestic animals from infected fowls.

DE OLIVEIRA, J. J. A. (1955). "Salmonella typhimurium" isolada de fezes de galináceos. **[*S. typhi-murium* isolated from fowl faeces.]**—*Rev. Cienc. vet., Lisboa.* **50,** 184-187. [In Portuguese. English summary.] **371**

In an outbreak of food poisoning affecting 105 guests at a wedding, *S. typhi-murium* was isolated from the faeces of some of the victims, half of whom were admitted to hospital. Investigations revealed that some hens on the farm from which eggs had been obtained were carriers of *S. typhi-murium.*
—I. W. JENNINGS.

SMITH, H. WILLIAMS. (1955). **The treatment of experimental *Salmonella typhi-murium* infection in turkey poults and chicks.**—*Vet. Rec.* **67,** 749-752 & 753. [Author's summary slightly modified.] **372**

Furazolidone, 0·04% in the mash fed continuously for 10 days, was effective in controlling mortality following *S. typhi-murium* infection in turkey poults and chicks. Even when treatment was commenced 3 days before infection, a high proportion of treated birds became carriers of the organism. The faeces were more commonly infected than were the organs. Increasing the conc. of furazolidone, or repeating the treatment did not decrease the carrier rate. A conc. of 0·2% in the mash proved very toxic for chicks. S. discussed the reason for the high proportion of carriers amongst treated birds and their public health significance.

GREUEL, E. (1955). Untersuchungen zur Bekämpfung der Breslau-Infektion (Flügellähme) der Tauben mit Aureomycin und Leukomycin. **[Control of salmonella infection in pigeons with aureomycin and chloramphenicol.]**—*Dtsch. tierärztl. Wschr.* **62,** 315-316. **373**

S. typhi-murium infection in pigeons can be effectively controlled with oral doses of 15 mg. aureomycin, or 50 mg. chloramphenicol per day, given over a period of 8 days, at 8-hourly intervals.—F. K. LEEB.

KETZ, A. (1955). War der Fleischbeschautierarzt durch Unterlassung der bakteriologischen Fleischuntersuchung strafrechtlich für die Massenerkrankung verantwortlich zu machen? **[Mass *Salmonella typhi-murium* food poisoning in man and the question of liability to prosecution of the responsible veterinary meat inspector.]**—*Arch. Lebensmittelhyg.* **6.** 190-192. **374**

Following a severe outbreak of food-poisoning it was discovered that an emergency-slaughtered cow was infected with *S. typhi-murium.* It was not proved that meat from the infected animal had been the cause of all the cases of food-poisoning. K. concluded that both the slaughterman and the veterinary meat inspector were guilty of negligence.—M.G.G.

HAMADA, S., HASHIMOTO, H., TASAKA, T. & TSUCHIYA, Y. (1955). **Isolation of *Salmonella new brunswick* from chickens.**—*Jap. J. vet. Res.* **3,** 1-7. [In English. Authors' summary slightly modified.] **375**

S. new brunswick was isolated from 4 apparently healthy chickens less than 25 days old. This is considered to be the first instance in which the organism has been isolated from animals other than human beings in Japan.

ZUMBRO, P. B. (1954). **Methods and procedures in pullorum disease control used by States cooperating in the National Poultry and Turkey Improvement Plans, 1953-1954**—*Proc.*

N. Cent. Sts. Poult. Dis. Conf. 1954. pp. 43-45. [Mimeographed.] **376**

For the testing of fowls 9 States use the standard tube agglutination test, in 27 States the rapid whole blood test is used and in 11 others the standard tube and the rapid serum and whole blood tests are carried out. For turkeys the standard tube test is used in 33 States, the rapid serum test in 6, the standard tube and whole blood tests in 4, while in 4 States no official testing of turkeys is carried out.—D. Luke.

Ratomski, A. & Wiśniowski, J. (1955) Terenowa aglutynacja szkiełkowa z kropla krwi pryz brucelozie bydła. [**A modified rapid plate agglutination test for the diagnosis of brucellosis in cattle.**]—*Méd. vét., Varsovie.* **11,** 5-12. [English and Russian summaries.] **377**

The modified whole blood agglutination test described for use in the field yielded results that were 95% accurate when compared with the tube agglutination test on serum samples. A single drop of blood is added to a drop of 0·25% sodium citrate and a drop of antigen stained with crystal violet. The dilution of antigen used was 1 : 25.

—J. R. Mitchell.

Rossi, P., Triozon, F., Dutilloy, Y. & Goguillot, T. (1954). L'épreuve de l'anneau (Abortus-Bang-Ringprobe ou ring-test) avec les laits chauffés. [**The use of the ring test with heated milk.**]—*Bull. Acad. vét. Fr.* **27,** 419-422. **378**

Milk heated to 72°C. and below for up to 5 min. still reacted to the *Br. abortus* ring test. Many of the positive samples heated to 74°C. and above for up to 5 min. gave positive results to the test if fresh uninfected cream was added after heating.—R.M.

Weiss, K., (1955). Die Diagnostik der Bang-Infektion der Bullen unter besonderer Berücksichtigung der Sperma - Untersuchungen. [**Diagnosis of *Brucella* infection in bulls, with special reference to the examination of semen.**]—*Prakt. Tierarzt.* No. 1, pp. 1-5, No. 2, pp. 25-28. **379**

Semen agglutination tests were found to be superior to culture and animal inoculation for the diagnosis of *Br. abortus* infection in bulls. In doubtful cases the flocculation reaction of Sachweh is of value for confirmation of the diagnosis. A positive reaction to both tests indicates that a bull is infected and a potential disseminator of the infection.

—W. G. Siller.

Kurancowa, Z. (1953). Kilka obserwacji w zakresie brucelozy. I. Wpływ stretomycyny na *Brucella abortus bovis*. II. Wpływ adrealiny na odczyn Wrighta oraz tiaminy i kw. l-askorbinowego no odczyn Wrighta i Burneta przy brucelozie. [**Some observations on brucellosis. I. Influence of streptomycin on *Brucella abortus bovis*. II. The influence of adrenaline on the influence of thiamine and ascorbic acid on serological reactions.**]—*Ann. Univ. M. Curie-Skłodowska.* Sect. DD. **8,** pp. 145-163. [English and Russian summaries.] **380**

I. An account of *in vitro* and *in vivo* studies in rabbits using *Br. abortus* Strain 34. *In vitro* streptomycin was bactericidal, but after prolonged cultivation in the presence of streptomycin a drug-resistant strain developed which remained resistant through several passages. *In vivo* the drug had no bactericidal action. Owing to its toxicity for rabbits only small dosages were used which had only some bacteriostatic action.

II. In rabbits infected with *Br. abortus* Strain 34 the titre of the agglutination reaction was increased following injection of adrenaline or of ascorbic acid. Thiamine had no influence on either of the serological reactions studied.—J. R. Mitchell.

Sessi, P. (1955). Brucellosi ovina e monticazione. [**Brucellosis in sheep and mountain pasture.**]—*Zooprofilassi.* **10,** 421-423. **381**

Tests on a flock of 100 sheep revealed that a sojourn of seven months on mountain pastures had no effect on the brucellosis with which they were infected.—I. W. Jennings.

Buddle, M. B. (1955). **Experimental infection of sheep with *Brucella abortus*.**—*N.Z. vet. J.* **3,** 74-77. **382**

Of 9 two-tooth rams inoculated i/v with approx. 10 x 10^6 *Br. abortus* Strain 544 organisms, 2 developed active infection and secreted the organism in the semen during an observation period of 24 weeks, but the external genital organs remained clinically healthy. Of 12 two-tooth ewes similarly inoculated 5 weeks after mating had begun, 2 failed to conceive; of the 10 which became pregnant, 7 developed active infection and 5 of these gave birth to dead lambs after 102–137 days. The mean gestation period for the 7 actively infected ewes was 127 days as compared with 143·5 days in a comparable group inoculated with the ovine brucella-like organism described in earlier work. [*V.B.* **23,** 3293; **25,** 1596.]—F.E.W.

FLÜCKIGER, G. (1955). Der Kampf gegen den Rinderabortus Bang im Lichte neuzeitlicher Betrachtung. **[Control of *Br. abortus* infection in cattle in Switzerland.]**—*Schweiz. Arch. Tierheilk.* **97,** 283-294. [English, French and Italian summaries.] **383**

F. suggested that *Br. abortus* infection could be eradicated from cattle in Switzerland by official testing of milk and disposal of reactors, if the owners were instructed in the elements of disease prevention and hygiene.
—W. G. SILLER.

V. SPROCKHOFF, H. & STRAUCH, D. (1955). Untersuchungen von Brucella-Stämmen auf ihren Gehalt an Abortus- und Melitensis-Antigen. **[Examination of strains of brucella for their content of *Br. abortus* and *Br. melitensis* antigens.]**—*Zbl. VetMed.* **2,** 66-75. [English, French & Spanish summaries.] **384**

Sixty-four strains of brucella were examined serologically and for their H_2S production. Accurate differentiation could be made between young strains of *Br. abortus* and *Br. melitensis* using agglutinin-absorption sera. Old strains of *Br. melitensis,* however, tend to alter their antigenic structure and may react like *Br. abortus.*—W. G. SILLER.

VAN DRIMMELEN, G. C. (1955). **Concentration of *Brucella* vaccine.** [Correspondence.]—*Nature, Lond.* **176,** 469. **385**

Sodium-carboxy-methyl-cellulose is a preservative and agglutinant for brucella. The addition of this substance to the vaccine suspension before freeze-drying resulted in an increased number of viable organisms per ampoule, and consequently a greater number of doses.—C. C. BANNATYNE.

EVENSON, M. A. & GERHARDT, P. (1955). **Nutrition of brucellae: utilization of iron, magnesium, and manganese for growth.**—*Proc. Soc. exp. Biol. N.Y.* **89,** 678-680. [Authors' summary modified.] **386**

The growth response of *Brucella abortus* Strain 19 to added metallic ions was studied in a defined medium depleted of metals by chelation with 8-hydroxyquinoline. Iron and magnesium ions were found to be essential. The essentiality of manganese ions was not demonstrated. No interdependence nor sparing effect was demonstrable between varying concentrations of magnesium and manganese ions.

DAVIES, J. R. & WRIGHT, E. A. (1955). **The specific precocious protective action of tetanus toxoid.**—*Brit. J. exp. Path.* **36,** 487-493. [Authors' summary slightly modified.] **387**

Tetanus toxoid, when given in large doses, exerted a specific precocious protective action against tetanus toxin. This action was greatest when the toxoid was given i/v at the same time or shortly before the toxin. The results of a quantitative study of this effect were consistent with the view that the toxoid competes with the toxin for some hypothetical receptor substance, but that once the toxin has become fixed to the brain tissue the toxoid exerts no effect. Animals whose deaths from the effects of tetanus toxin are delayed by the administration of toxoid, do not show the usual signs of tetanus, but show paralytic signs similar to *Cl. botulinum* intoxication.

SCHIEBNER, G. (1955). Die Empfänglichkeit des Schweines für Botulinustoxin der Typen A - E. **[Susceptibility of the pig to *Cl. botulinum* toxins.]**—*Dtsch. tierärztl. Wschr.* **62,** No. 35/36, pp. 355-358. **388**

S. demonstrated the low susceptibility of pigs to Type A *Cl. botulinum* toxin. Repeated oral administrations of 60,000 mouse m.l.d. of Type A toxin had no effect on piglets weighing 10–11 kg. but one million mouse m.l.d. in similar piglets produced characteristic symptoms of the disease and death. Equally massive oral doses of Type B-E toxins were ineffective as were subcutaneous injections of 10 ml. of the Type C toxin.—F. K. LEEB.

DINTER, Z. & KULL K.-E. (1955). Über die Empfänglichkeit des Nerzes für die Botulinus-Toxine A und C. **[Susceptibility of mink to botulinus toxins.]**—*Nord. VetMed.* **7,** 549-563. [In German. English and Swedish summaries.] **389**

Following an outbreak of botulism in mink, experiments were carried out to determine the susceptibility of mink to botulinus A and C toxins. When given by the mouth, Type A toxin was found to be about 400 times less toxic than Type C toxin, but only about 5 times less toxic when given intraperitoneally. It is concluded that this difference in toxicity is due to a difference in the absorptive capacity of the mucous membrane of the alimentary tract with regard to the two types of toxin.
—J. A. NICHOLSON.

SCHEBITZ, H. & DEDIÉ, K. (1955). Zur Bewertung von Leptospirentitern im Pferdeserum. **[The significance of leptospira titres in horse serum.]**—*Zbl. VetMed.* **2,** 522-543. [English, French and Spanish summaries. English summary modified.] **390**

After an account of the clinical symptoms of leptospirosis in man and in the horse, the

results are given of repeated serological tests on 82 normal horses and 17 horses with ocular changes which were attributed to periodic ophthalmia. The findings showed that:— a higher proportion of reactors can be detected by repeated tests than by single tests; non-specific stimuli (diseases, operations, injections, caustics etc.) may provoke or increase antibody formation; the strength of the stimulus, its duration, and the reactivity of the host determined the height and duration of the rise in titre. Such non-specific stimuli also cause a rise in titre in horses with ocular changes attributable to periodic ophthalmia but a high titre does not develop in the aqueous humour. The authors concluded that it was difficult to determine from repeated serological tests, without the demonstration of the causal agent, what part leptospira play in periodic ophthalmia. The varying results obtained in surveys in different clinics were due to variation in the patients and not necessarily to variations in local infection rates.

Webster, W. M. & Reynolds, B. A. (1955). **Immunization against *Leptospira pomona*.**—*N.Z. vet. J.* **3,** 47-59. [Abst. from authors' summary.] **391**

In vaccination trials, using a heat-killed whole culture, complete protection was conferred on 20 sheep against massive doses of a virulent culture of *L. pomona,* administered 3 weeks after vaccination and again 11 months later. Of 20 control sheep similarly challenged, 16 subsequently developed a leptospiruria which persisted for up to 3 months, but sheep naturally infected have been observed to excrete the organism for as long as 9 months.

Viable leptospira are excreted in the alkaline urine of herbivorous animals, and the disease may be readily transmitted by inoculation of urine. Mild asymptomatic leptospirosis probably presents a bigger economic problem through subsequent chronic unthriftiness than does the actual mortality from the acute form of the disease. Details are given of the appropriate lab. techniques and the importance of strict adherence is emphasized.

Brown, A. L., Creamer, A. A. & Scheidy, S. F. (1955). **An improved leptospira bacterin for the control of bovine leptospirosis.**—*Proc. 58th Ann. Meet. U.S. live Stk sanit. Ass., Omaha,* 1954. pp. 227-235. **392**

A killed vaccine was prepared from cultures of *L. pomona.* A dose of 50 ml. inoculated s/c was effective in cattle against artificial infection with virulent leptospira.
—T.E.G.R.

Lorber, M. G. (1955). **Observations on the use of leptospirosis vaccine.**—*N. Amer. Vet.* **36,** 110. **393**

A tentative diagnosis of leptospirosis was made after several possible causes of infertility in a dairy herd had been ruled out. "Leptogen" vaccine was used and the conception rate rose from 20–25 to 50–65%; recurrence of oestrus at 30–40 days and abortions virtually ceased.—T.E.G.R.

Schlossberger, H., Betzel-Langbein, H., Kreuz, G. (1954). Über die Epidemiologie der Leptospirosen. [**Epidemiology of leptospirosis.**]—*Acta trop., Basel.* **11,** 300-302. [In German.] **394**

L. icterohaemorrhagiae was transmitted from g. pig to g. pig by the tick *Ornithodoros moubata.* The authors suggested that this mode of transmission occurred in other animals.—R.M.

Hartwigk, H. & Gerriets, R. S. (1955). Canicola-Leptospiren als Ursache einer Furunkulose bei einem Hund. [*Leptospira canicola* **causing furunculosis in a dog.**]—*Berl. Münch. tierärztl. Wschr.* **68,** 279-281. [English summary.] **395**

Leptospira, isolated twice within one year, from lesions in a Dachshund affected with chronic furunculosis, were shown by microscopic examination and cultural tests to be *L. canicola.* The organism was cultivated on horse-liver broth, either alone or mixed with Korthof rabbit serum. Liver broth appears to have a growth-stimulating action on leptospira which is useful in primary cultures.
—F. K. Leeb.

Stoll, L. (1955). Ein Beitrag zur Leptospirenzüchtung. [**The cultivation of leptospira.**] —*Arch. exp. VetMed.* **9,** 145-148. **396**

Horse serum albumin was found to be more satisfactory and cheaper than rabbit serum, commonly used in Korthof medium.
—E.G.

Moynihan, I. W. & Stovell, P. L. (1955). **A cervicovaginal-secretion agglutination test for the diagnosis of vibriosis in cattle.**—*Canad. J. comp. Med.* **19,** 233-239. **397**

Antibodies extracted from cervico-vaginal secretions were used to test a number of cattle for *V. fetus* infection. The secretions, collected with a cellulose sponge tampon, are

homogenized with saline soln; 3% melted Davis agar is added, and the mixture is incubated at 57°C. for one hour, poured into 4 oz. screw-topped jars and allowed to harden. Phenolized saline is layered on the agar and antibodies are extracted by diffusion during an 18-hour period at 37°C. The clear extract is tested for antibody content by agglutination reaction. In tests on 266 animals in 24 herds the method was found to be specific and of diagnostic value. When other types of agar were used non-specific reactions occurred in low dilutions.—A. GREIG.

RUSSELL, R. R. (1955). **A vibrio associated with scouring and mortality in hoggets in New Zealand.**—*N.Z. vet. J.* **3,** 60-63. [Author's summary copied *verbatim*.] **398**

The isolation of an unidentified vibrio associated with scouring and mortality in hoggets in New Zealand is described. The morphological and cultural characteristics of the organisms are detailed. The possible relationship to *V. fetus* is briefly discussed.

MORRIS, E. O. (1953). **Observations upon the cytology and life history of *Fusiformis*.**—*J. Hyg., Camb.* **51,** 49-54. **399**

Fusiformis has 3 morphological types: small, large, and filamentous and has the cytological characteristics of the Eubacteria. Normally it reproduces by fission, but a few organisms of every strain which had been freshly isolated from the human mouth, were observed passing through the L cycle. L forms could not be cultivated in a stable form and all strains lost the ability to reproduce by the L cycle after repeated subculture.

—A. ACKROYD.

BAIN, A. M. & JOHNSTON, K. G. (1955). **Bacteroides arthritis in a foal.**—*Aust. vet. J.* **31,** 210-213. [Authors' summary modified.] **400**

A case report of suppurative arthritis in a foal due to a species of *Bacteroides* (possibly *B. convexus*). The clin. management of the case and the salient characteristics of the organism are described.

ZLOTNIK, I. (1955). **Cutaneous streptothricosis in cattle.**—*Vet. Rec.* **67,** 613-614. **401**

Z. described the clinical picture and discussed the epidemiology of two outbreaks of Senkobo skin disease (*Actinomyces congolensis* infection) in zebu and European grade cattle in Nyasaland. Experience indicates that tree thorns and branches play an important role in mechanical transmission of the infection. The histology of the skin lesions is described. Local treatment with "anabac" (a quaternary ammonium compound) was effective.—F. E. W.

CHUTE, H. L., WITTER, J. F., ROUNTREE, J. L. & O'MEARA, D. C. (1955). **The pathology of a fungous infection associated with a caponizing injury.**—*J. Amer. vet. med. Ass.* **127,** 207-209. [Authors' summary modified.] **402**

An outbreak of systemic *Aspergillus fumigatus* infection was reported in 5-week-old chickens which had been caponized. The fungus was isolated from the wound. Investigation at the farm revealed that similar outbreaks had been occurring in caponized chickens for several years. A respiratory infection was produced in a chick by the use of a sub-culture from the original isolate.

A routine histopathological examination with haematoxylin and eosin stain might not reveal the aetiological factor. The authors discussed the merits of the Gridley stain for the detection of fungi.

UNDERWOOD, P. C. (1955). **Detection of crop mycosis (moniliasis) in chickens and turkey poults with a panendoscope.**—*J. Amer. vet. med. Ass.* **127,** 229-231. **403**

The author describes the use of a panendoscope (as used in human urological examinations) for the examination of the crop mucosa in the clinical diagnosis of moniliasis. The method proved to be 75–90% accurate in experimentally infected birds.—D. LUKE.

SCHERR, G. H. (1955). **The effect of cortisone, somatotrophic hormone, and piromen on experimental moniliasis in mice.**—*Mycologia.* **47,** 305-310. [Author's summary modified.] **404**

"Piromen", a polysaccharide extract prepared from a species of *Pseudomonas*, injected i/p in a dosage of 0·1 μg. per mouse every 48 hours into male and female mice infected with *Candida albicans* served to suppress markedly the severity of the infection and mortality. Cortisone reversed this efficacious effect in male mice but not in females. Combined treatment with piromen and somatotrophic hormone reduced the severity of the infection still further in female mice, but this apparent synergistic effect was antagonized when cortisone was introduced into the mixture. S. discussed the implications of these data, especially for their clinical application.

GROCOTT, R. G. (1955). **A stain for fungi in tissue-sections and smears using Gomori's methenamine-silver nitrate technic.**—*Amer. J. clin. Path.* **25,** 975-979. **405**

G. described the use of the methenamine-silver nitrate technique (described by Gomori, 1952), for the staining of fungi in tissue sections and smears. Excellent photomicrographs of the preparations can be obtained by the use of standard reagents and stable solutions without the aid of colour filters.

—F.E.W.

PRIESTLEY, F. W. (1955). **Further observations on immunity to contagious bovine pleuro-pneumonia, with special reference to adjuvants.** — *Vet. Rec.* **67,** 729-732 & 733 [Author's summary modified.] **406**

P. confirmed that dried pleuro-pneumonia organisms incorporated in 0·5% agar rapidly and solidly immunized cattle. Using agar, he showed that the number of organisms required to immunize was very much smaller than anticipated; it was possible to obtain 1,000 doses from 1 ml. dried culture. Using such small numbers, the proportion of adverse reactions was low, particularly if the strain had been suitably attenuated previously.

Dried vaccine was very stable. It immunized cattle after storage for 6 months even at incubator temp. Whole egg and particularly egg yolk were also good adjuvants, though probably not as good as agar. P. suggested that the "avianized" vaccine described by Sheriff & Piercy [*V.B.* **23,** 386 & **24,** 4010] consisted essentially of attenuated organisms in adjuvant.

ERTÜRK, O. (1953). Salgin Keçiciğerağrisi (Pleuro-pneumonia contagiosa caprae) virusunun tavuk embriyosune adaptation'u ve embryon aşisi ile keçilerde yapilan bağisiklik denemeleri. **[Cultivation of the caprine pleuro-pneumonia organism on chick embryos.]**—*Thesis, Ankara.* pp. **48.** [Abst. from German summary.] **407**

Chick embryos, 10 days old, were killed by the inoculation of lung suspension from goats with caprine contagious pleuro-pneumonia. The congestion and haemorrhage present in these embryos was more extensive than in embryos inoculated with thoracic exudate. The organism became adapted to chick embryos after 38 passages. Goats and rabbits inoculated with embryo-adapted organisms developed a moderate immunity which lasted for 8 months. These animals developed symptoms when challenged with fully virulent organisms, but did not die, and did not become carriers. Sulphadimidine cured caprine pleuro-pneumonia only in the early stages.—R.M.

I. POPOVICI, I., TAGA, M., GRIGORE, C. & CÎRSTET, I. (1953). Cercetări asupra profilaxei specifice in agalaxia contagioasă a oilor şi caprelor. **[Specific prophylaxis of contagious agalactia in sheep and goats.]**—*Ann. Inst. Pat. Igien. Anim., Bucharest.* **4,** 132-142. [French and Russian summaries. **408**

II. GRIGORE, C. (1953). Studiul epizootologic al agalaxiei contagioase a oilor şi caprelor în R.P.R. **[Epidemiology of contagious agalactia of sheep and goats in Roumania.]**—*Ibid.* 143-151. [French and Russian summaries. Abst. from summaries.] **409**

I. During 1953, two hundred thousand sheep and goats were inoculated with an inactivated adsorbed contagious agalactia vaccine, prepared at the Institute for Pathology and Animal Hygiene at Bucharest. When used at the start of an outbreak, the vaccine was said to prevent further cases of the disease 8–14 days after inoculation. Preventive vaccination, carried out in April and May, was claimed to give good protection lasting for one lactation in milch ewes and goats.

Inoculation with living contagious agalactia organisms of low virulence was also practised in infected or in-contact flocks. Mild agalactia, as a result of inoculation, occurred in about 7·4% of animals.

II. Contagious agalactia, first introduced into Roumania in 1936, occurs chiefly in the south-east of the country. Out of 362 outbreaks existent in 1953, 214 started between 1948 and 1952, and 55 before 1948.—R.M.

CHRISTODOULOU, T. & TARLATZIS, C. (1954). La maladie des oedèmes des chèvres de Sparte. Sa place dans le groupe pleuropneumonie-agalaxie et sensibilité aux antibiotiques de son virus causal. **[The oedema disease of goats in Greece and its relationship to the pleuropneumonia-agalactia group of diseases.]** — *Bull. Acad. vét. Fr.* **27,** 441-446. **410**

A disease of goats characterized by the development of s/c oedema, cellulitis, fever, and death after 3–4 days has been described as occurring in the Sparta region of Greece by Debonera (1937) and Melanidi [*V.B.* **22,** 1331], who considered it to be a severe form of contagious agalactia. The present authors, examining material from outbreaks in various

parts of Greece between 1947 and 1954, agreed with Edwards [*V.B.* **24,** 1049] that the causal agent of the disease was similar to that of caprine contagious pleuro-pneumonia. The causal agent of oedema disease of goats was killed by streptomycin and aureomycin *in vitro,* but not by penicillin. Treatment of affected sheep with streptomycin was said to have given promising results, but no details were given.—R.M.

Boháč, J., Bednář, B., Láznička, F. & Dombek, R. (1955). Nebakteriální infekční onemocnění zúčastněné na komplexu t. zv. "chřipky" prasat. I. Isolace agens vyvolávajícího infekční polyserositis prasat. **[A disease of the swine influenza complex. I. Isolation of the agent of infectious polyserositis of pigs.]**—*Sborn. čes. Akad. zeměděl sk. Věd, Živoč. Výr.* **28,** 91-100. [In Czech. English and Russian summaries.] **411**

Láznička, F., Bednář, B., Boháč, J. & Dombek, R. (1955). Nebakteriální infekční onemocnění zúčastněné na komplexu t. zv. "chřipky" prasat. II. Identifikace agens vyvolávajícího infekční polyserositis prasat. **[A disease of the swine influenza complex. II. Identification of a pleuropneumonia-like organism.]**—*Ibid.* 101-106. [In Czech. English and Russian summaries.] **412**

I & II. A pleuropneumonia-like organism was isolated from organs of pigs with rheumatoid polyarthritis, fibrinous serositis and clin. symptoms resembling generally those of swine influenza. Cattle and laboratory animals were not susceptible to infection. The authors cultivated the agent in chick embryos and produced several passages in pigs with a clin. picture resembling natural infection. The organism was penicillin resistant, but streptomycin sensitive. It remained virulent for at least a month when stored at –20°C. The authors believed that the organism may be closely related to those described by Klieneberger, and Swift *et al.* and Sabin *et al.* [*V.B.* **10,** p. 582] and considered the condition in pigs to be similar to that described by Doyle *et al.* [*V.B.* **21,** 1149].—E.G.

Lecce, J. G. & Sperling, F. G. (1955). **Chronic respiratory disease. III. The effect of treatment on the pleuropneumonia-like organism flora of avian tracheas.**—*J. Amer. vet. med. Ass.* **127,** 54-56. **413**

Hens which were either field cases of chronic respiratory disease or carriers of pleuropneumonia-like organisms were each given terramycin or aureomycin in the drinking water, at a conc. of 10 g. per litre, for 5 days. Pleuropneumonia-like organisms could not be isolated from the trachea of these fowls 2 days after the cessation of treatment, but they were isolated 9 weeks later.—R.M.

Appleby, J. C. (1955). **The isolation and classification of proteolytic bacteria from the rumen of the sheep.**—*J. gen. Microbiol.* **12,** 526-533. [Author's summary copied *verbatim.*] **414**

Proteolytic bacteria were isolated from the rumen of three sheep receiving an adequate protein diet. Using selective anaerobic conditions to suppress the majority of bacteria which were not capable of utilizing casein, proteolytic representatives of several bacterial genera were found. All of these may have been derived from the environment or food of the sheep. The most frequent organism was *Bacillus licheniformis* which existed in the vegetative form in the rumen, although present mostly in the form of spores in the hay fed to the animal.

Wainfan, E., Henkin, G., Rittenberg, S. C. & Marx, W. (1954). **Metabolism of cholesterol by intestinal bacteria *in vitro*.**—*J. biol. Chem.* **207,** 843-849. **415**

Organisms isolated from faeces of cholesterol-fed rats could utilize cholesterol as a carbon source. Incubation of resting cells with cholesterol decreased assayable sterol and increased bacterial oxygen consumption, this being stimulated by 2,4-dinitrophenol and nicotinamide. Two active organisms were *Bacterium aerogenes* and *Pseudomonas jaegeri.*—J. M. Leach.

See also absts. **580** (mycotoxic studies in haemorrhagic disease of poultry); **659** (report, N. Ireland); **660** (report, Union of S. Africa); **661** (report, N. Rhodesia); **662** (report, India); **663** (report, Sarawak); **665** (report, Bechuanaland); **666-667** (reports, Gambia); **668** (report, Tanganyika); **670** (report, Pasteur Institute, Algeria).

DISEASES CAUSED BY PROTOZOAN PARASITES

Nash, T. A. M. (1955). **Nigeria. West African Institute for Trypanosomiasis Research, Annual Report, 1954.** pp. 36. Zaria, Nigeria: Gaskiya Corporation. **416**

The Ilorin strain of *T. vivax* had been maintained in rats for 3 years. It had been sub-passaged 476 times by direct transmission through rats. Infectivity or virulence had not changed during the previous 12 months. The strain is still easily and regularly transmitted

cyclically by *Glossina palpalis* to susceptible cattle, but not from rat to rat. This rat strain when transmitted by *G. palpalis* to sheep caused a transient infection, with a low parasitaemia, unlike the natural infection in sheep.

Transmission of *T. congolense* was effected by inoculation of the blood of a naturally infected dog into a sheep, and then cyclically by *G. palpalis* from sheep to sheep. The strain produces a chronic infection, in which few trypanosomes are found in the blood. Only 2 of 7 sheep infected have died over a period of 13 months.

Antrycide (quinapyramine) resistance was found in a strain of *T. vivax* from cattle in a tsetse area where antrycide had been used. The resistance was to the normal dosage of 5 mg./kg., but infected cattle were cured when the dosage was raised to 7·5 mg./kg.

A strain of *T. congolense,* rendered resistant to 16 times the original dosage of 0·5 mg./kg. antrycide methyl sulphate, was serially passaged through rats for 65 days without change, but thereafter resistance declined until after 110 days the strain became susceptible to a dose of 5 mg./kg. Resistance to 3 mg./kg. was lost by the 120th day, but the strain retained some degree of resistance to 1 mg./kg. up to the 191st day when the experiment ceased. Antrycide-fastness in *T. congolense,* therefore, may not be of such importance as was at first thought—a conclusion reached by Fiennes in East Africa.

Antrycide properly used does not produce resistant strains, but cattle that are continuously exposed to tsetse require to be retreated before trypanosomes appear in the blood. It is suggested that in areas of W. Africa where the challenge from tsetse is light the interval between doses of the "prosalt" (quinapyramine prophylactic) should be not more than 70 days.

In trials with ethidium bromide in zebu cattle in W. Africa, a dose of 1 mg./kg. cured fly-transmitted *T. vivax* infection and the treated animals did not relapse although driven 100 miles in 5 days after treatment and kept under observation for 6 months afterwards.

—J. A. Griffiths.

Travassos Santos Dias, J. A. (1955). O fomento pecuário de Moçambique perante o problema das tripanossomíases. **[Trypanosoma infection in Mozambique.]** — *Rev. Cienc. vet. Lisboa.* **50,** 161-171. [In Portuguese. French summary.] **417**

The rearing of animals in Mozambique is difficult, owing to the presence of the tsetse fly in three quarters of the entire area. The author recommends that the campaign against the tsetse should be intensified, particularly in those areas which can be put to immediate use. He also suggests that it would be helpful if Mozambique had a permanent representative on the International Committee for Trypanosomiasis.—I. W. Jennings.

Vittoz, R. (1955). Prophylaxie du surra en Asie. **[Prevention of *Trypanosoma evansi* infection in Asia.**—*Bull. Off. int. Epiz.* **44,** May, pp. 83-106. [English summary.] **418**

Antrycide was more lethal *(in vivo)* for Asian than African strains of *T. evansi.* Further investigation into the efficacy of antrycide is recommended. Suramin ("naganol"), 1 g./100 kg., is specific for horses. Doses of 4–5 g. are effective in camels.

—Jas. G. O'Sullivan.

Fulton, J. D. & Grant, P. T. (1955). **The preparation of a strain of *Trypanosoma rhodesiense* resistant to stilbamidine and some observations on its nature.** — *Exp. Parasit.* **4,** 377-386. [Authors' summary modified.] **419**

Resistance of a strain of *T. rhodesiense* to stilbamidine (4 : 4 diamidino stilbene) lasted for about a year in the absence of the drug, and then began to decrease rapidly. The same strain was also resistant to drugs with wide variations in chemical constitution. By using the fluorescent property of the drug in ultraviolet light it was demonstrated that both normal and resistant strains of the parasite absorbed diamidines *in vivo* and *in vitro,* but to a different extent.

Da Silva Leitão, J. L. (1953). Leishmaniose canina em Lisboa e arredores. Aspecto clínico. Métodos de diagnóstico laboratorial. Lesões microscópicas. **[Canine leishmaniasis in Lisbon. Clinical aspects, laboratory diagnosis and histology.]**—*Arch. Pat., Lisboa.* **25,** 1-78. [English and French summaries.] **420**

The author gives the results of his observations on cases of canine leishmaniasis in the Lisbon district over a period of 6 years. Affected animals were usually, but not always, thin, with bald spots and crusts chiefly at the edges of the ears and tail. Often there were ulcerations over the metacarpus and metatarsus, and hypertrophy of the claws was common. (One case conforming to this

description, however, proved to be *Hepatozoon canis* infection.) Diagnosis during life was best made from scrapings from the matrix of the claws. Histologically the disease was characterized by the presence of granulomas in nearly all the tissues, and general congestion of the organs. The parasites were demonstrated in the cells of the reticulo-endothelial system. Attention is drawn to the need for further work, particularly on the transmission of the disease, because of the danger to public health.—I. W. Jennings.

Di Domizio, G. (1955). Casi mortali di leishmaniosi viscerale canina autoctona in Bologna —contributo allo studio anatomopatologico e parassitologico. **[Visceral leishmaniasis in dogs in Bologna.]** — *Zooprofilassi.* **10,** 399-414. [English and French summaries.] **421**

The author describes the gross and microscopic lesions found in 5 cases of canine leishmaniasis. The disease affects the entire reticulo-endothelial system, and an outstanding characteristic is the brownish coloration of the lymph nodes, due to marked plasma cell proliferation. The gravity of the disease is the result of constant re-infection by the dog flea. Infected flea bites give rise to the numerous small s/c nodules, which are so important in the cycle of infection between one animal and another, or between animals and man.

—I. W. Jennings.

Sutherland, A. K. (1955). **Bovine trichomoniasis.**—*Aust. vet. J.* **31,** 43-45. **422**

S. gave a brief account of the history of trichomoniasis amongst a group of 5 herds of dairy cattle in Queensland, Australia. He mentioned the limitations of the various methods of diagnosis under the conditions prevailing in this State, together with the difficulty of control by artificial insemination. He outlined a programme for the control and eradication of the disease from dairy cattle in Queensland.—L. E. A. Symons.

Beattie, H. E. R. (1955). **Trichomoniasis.**—*Aust. vet. J.* **31,** 42-43. **423**

A bull treated unsuccessfully by i/v injection of sodium iodide and then rested for 18 months was able to infect a cow and a heifer. It was also found possible to infect clean cows experimentally with material collected from infected cows. *Tr. foetus* could survive at least 5 days at 5°C. in ordinary semen diluents, but did not long survive rapid thawing after overnight storage at –79°C. in glycerol.—L. E. A. Symons.

Levine, N. D. & Marquardt, W. C. (1955). **The effect of glycerol and related compounds on survival of *Tritrichomonas foetus* at freezing temperatures.**—*J. Prot.* **2,** 100-107. **424**

Nine to ten per cent glycerol in cysteine, peptone, liver infusion and maltose medium protected *Trichomonas foetus* when frozen slowly to –20° or –76°C. and stored at either temperature. The effects of different cooling rates and storage temperatures on the survival of *Tr. foetus* were recorded. Slow freezing at the rate of 1°C. per min. and storage at either –20° or –76°C. permitted survival for as long as 128 days in some cases. The conc. of glycerol could be varied between 10 and 5% without affecting survival. Ethylene glycol (4·8–7·26%) proved to be almost as effective as glycerol, but the period of survival at low temperatures was reduced. A series of other compounds related to glycerol all proved to be less effective.

It is suggested that the varying results of other workers, some of whom failed to recover *Tr. foetus* after freezing, may be accounted for by differences in experimental conditions.

—L. P. Joyner.

Kean, B. H. & Weld, J. T. (1955). **Transmission of *Trichomonas vaginalis* in the eye of animals.**—*Proc. Soc. exp. Biol., N.Y.* **89,** 218-219. **425**

Tr. vaginalis grew in the anterior chamber of the eyes of rabbits, and up to 14 serial passages from eye to eye were carried out. The authors suggested that this method may be of use in studying the action of drugs on trichomonads.—R.M.

Brion, A. & Cottereau, P. (1954). Présence de *Trichomonas* dans les cavités nasales de porcs atteints de rhinite atrophique. **[Trichomonas in the nasal cavity of pigs with atrophic rhinitis.]**—*C. R. Soc. Biol., Paris.* **148,** 1415-1416. **426**

A critical review of the literature. The authors are not of the opinion that trichomonads are the primary specific cause of atrophic rhinitis.—J. T. Done.

Hansen, M. A. & Flatla, J. L. (1955). Trichomonader i nesehulen hos gris og deres relasjon til Rhinitis atroficans. **[Trichomonads in the nasal cavity of pigs and their relation to atrophic rhinitis.]** — *Nord. Vet-Med.* **7,** 660-666. [In Norwegian. English and German summaries.] **427**

Trichomonads were present in the nasal cavity in 21 out of 53 pigs with atrophic

rhinitis, and in none of 85 normal pigs. Numerous trichomonads were present in one pig not affected with atrophic rhinitis, but in which there was necrosis of the anterior part of the conchae and of the palatal bone. Attempts to set up atrophic rhinitis in week-old piglets and in pigs, 2 months old, by repeated intranasal inoculation of a pure culture of the trichomonads were unsuccessful. The authors suggested that although trichomonads appear to play no primary role in the aetiology of atrophic rhinitis, they may possibly play a secondary role in the destruction of the conchae at a later stage in the disease. —F.E.W.

LEE, R. P. (1954). **The occurrence of the coccidian *Eimeria bukidnonensis* Tubangui 1931, in Nigerian cattle.**—*J. Parasit.* **40,** 464-466. **428**

A description of oocysts of *E. bukidnonensis,* found in the faeces of a Fulani calf in Nigeria.—R.M.

OHKUBO, Y., IKEDA, M. & TSUNODA, K. (1955). Coccidiose des poussins. **[Coccidiosis in chicks.]**—*Bull. Off. int. Epiz.* **44,** May, pp. 216-231. [English summary.] **429**

An account of research on avian coccidiosis in Japan. Tetramethylthiuram disulphide was effective against sporozoites and first-generation schizonts when given in the food at a daily dosage of 6–8 mg./ 100 g. body wt. per bird for 3–5 days. A 1·5% emulsion of the disinfectant o,o'-dichlorbenzol killed oocysts on wooden cages within 5 hours. The authors studied the action of drugs on coccidia by histochemical methods. For example, it was shown that nitrophenide inhibited glycolysis, resulting in death of the parasite from fatty degeneration.—R.M.

DIXON, J. E. (1955). **The determination of nitrofurazone in mixed feeds.**—*J. Sci. Fd Agric.* **6,** 556-558. [Author's summary slightly modified.] **430**

D. described a method for the determination of nitrofurazone in mixed poultry feeds. Interfering material was separated chromatographically, followed by absorptiometric measurement of the nitrofurazone. Recovery of known amounts of nitrofurazone was from 97 to 102%.

HITCHCOCK, D. J. (1955). **The life cycle of *Isospora felis* in the kitten.**—*J. Parasit.* **41,** 383-397. [Author's summary modified.] **431**

The life-history of *I. felis* in artificially infected kittens consisted of two asexual cycles and one sexual. The first asexual phase lasted from the 2nd to the 4th day after infection, the second asexual phase lasted from the 5th to the 6th day, and the sexual cycle occurred during the 7th and 8th days. All parasitic stages were found in the surface epithelial cells of the small intestine and occasionally of the caecum and large intestine. No pathological conditions or symptoms which could be attributed to this infection were recognized.

DE SMET, R. M. & LIPS, M. (1955). Un nouveau babesia du Katanga, Congo Belge: *Babesia vanhoofi.* **[A new babesia (*Babesia vanhoofi*) in the mongoose.]**—*Ann. Soc. belge Méd. trop.* **35,** 5-8. [In French. English and Flemish summaries. English summary modified.] **432**

A description of a new blood parasite of the genus *Babesia* in the mongoose in the Belgian Congo. This species showed pear-shaped organisms in the r.b.c.

GATES, D. W., MOHLER, W. M., MOTT, L. O., POELMA, L. J., PRICE, K. E. & MITCHELL, J. (1955). **A comparison of antigen production methods and complement-fixation procedures for diagnosing bovine anaplasmosis.** —*Proc. 58th Ann. Meet. U.S. live Stk sanit. Ass.*, Omaha, 1954. pp. 105-114. **433**

Three types of anaplasmosis antigen, namely, a carbon dioxide precipitate, and two distilled water extracts using different centrifuge methods, were prepared from the same donors and tested by two different laboratories. Each type was satisfactory in use, and comparison was made of productivity, economy and practical application of each method of production. Complement-fixation tests revealed a 97·9% accuracy at one laboratory and 81% at the other.—M. L. CLARKE.

OGLESBY, W. T. (1954). **Use of antibiotics. [In anaplasmosis—Ed. *V.B.*]** — *Proc. 91st Ann. Meet. Amer. vet. med. Ass.*, Seattle, 1954. pp. 53-56. **434**

In three cases of *A. marginale* infection in cattle it was observed that multiplication of the parasite in the r.b.c. ceased soon after administration of aureomycin or of terramycin. The use of antibiotics in the treatment of anaplasmosis was discussed.—T.E.G.R.

JACOBS, L., MELTON, M. L. & COOK, M. K. (1955). **Observations on toxoplasmosis in dogs.**—*J. Parasit.* **41,** 353-361. [Authors' summary modified.] **435**

Only young puppies given relatively large

inocula of *Toxoplasma gondii* succumbed to the infection. The organisms were found to be widely distributed in the body only in puppies which died or were killed 1–2 weeks after infection; they were rarely found in puppies killed 3 months or longer after infection. The organism was recovered from the blood of 7 out of 8 puppies for up to 14 days after infection. Antibody response to parenteral infection was rapid: the dye test for serum gave titres of 1 : 16–1 : 64 at one week and 1 : 1,024 or higher two weeks after infection. Neither faeces nor urine from infected dogs was infective for mice, with the exception of urine from puppies which died or were killed 1–2 weeks after infection.

Campbell, R. S. F., Martin, W. B. & Gordon, E. D. (1955). **Toxoplasmosis as a complication of canine distemper.**—*Vet. Rec.* **67,** 708-712. [Authors' summary modified.] **436**

A clinical and pathological account of toxoplasmosis in 16 dogs, in all of which distemper infection was apparently co-existent. It was impossible to identify clinical signs pathognomonic for toxoplasmosis. The authors described the gross and microscopic changes due to toxoplasms and compared them with those of distemper.

Seibold, H. R. & Hoerlein, B. F. (1955). **Subclinical canine distemper with renal toxoplasmosis.**—*J. Amer. vet. med. Ass.* **127,** 226-228. [Authors' summary modified.] **437**

After euthanasia on account of a recurrence of symptoms following a previous attack of distemper, a dog was found to have lesions of toxoplasmosis in the brain, liver and kidneys. Toxoplasms were demonstrated in the brain, liver and epithelium of the renal cortex. The possibility that such cases could develop into renal carriers of toxoplasmosis is discussed.

Krause, A. C. (1955). **Toxoplasma in tissues of man and pets.**—*J. Parasit.* **41,** 545-548. [Author's summary modified.] **438**

Suspensions of the brain, liver and occasionally lung and spleen of 23 apparently healthy dogs and 10 cats were inoculated into white mice. *Toxoplasma gondii* was obtained from one adult dog. Material from the cats was negative. Material from 40 human beings who had died from various causes gave no evidence of infection when treated in a similar manner.

Holz, J. (1955). Zur Morphologie der "Cysten" von *Toxoplasma gondii* und *Sarcocystis tenella*. [**Morphology of "cysts" of** *T. gondii* **and** *S. tenella*.] — *Frankfurt Z. Path.* **66,** 24-28. **439**

H. described the structural differentiation of "cystic" forms of *S. tenella* and *T. gondii*. These are in fact accumulations of a number of parasites and not one encysted single protozoon. The outer membrane of *Sarcocystis* consists of a layer of connective tissue, the peripheral part of which is formed by the host, followed by several layers, which can be differentiated under the ordinary light microscope. The innermost space of the cyst-like formation is divided by numerous septa and contains sarcosporidia in various stages of development.

Toxoplasma pseudocysts, or "terminal colonies" as they are sometimes called, result from the invasion of host cells by the parasite. Multiplication by binary fission takes place within the host cell. The wall of the pseudocyst is the cell membrane of the invaded cell. *Sarcocystis* is usually present in muscle and connective tissue, *Toxoplasma* in nervous tissue and organs.—E.G.

See also absts. **657** (report, London School of Hyg. & Trop. Med.); **662** (report, India); **664** (report, Trinidad & Tobago); **665** (report, Bechuanaland); **666-667** (reports, Gambia); **668** (report, Tanganyika).

DISEASES CAUSED BY VIRUSES AND RICKETTSIA

Petr, G. & Boháč, J. (1954). Rekonvalescentní a hyperimmunní hovězí sera u slintavky a kulhavky. I, II & III. **[Examination of serum from cattle hyperimmunized against foot and mouth disease, and from convalescents. I, II, and III.]**—*Vet. Čas.* **3,** 133-151. [In Czech. German and Russian summaries: pp. 154-155.] **440**

Petr, G. & Dombek, R. (1954). Rekonvalescentní a hyperimmunní hovězí sera u slintavky a kulhavky. IV. **[Examination of serum from cattle hyperimmunized against foot and mouth disease, and from convalescents. IV.]**—*Ibid.* 151-155. [In Czech. German and Russian summaries.] **441**

I. An account of polarographic analysis of serum and serum albumin at various stages during the process of immunization against F. & M. disease.

II. During immunization against type A

infection the lowest albumin level was reached 16–19 days after infection, representing about 65–72% of the original content. This level remained about the same following subsequent vaccination with type O virus. About 60 days after infection the level was 90% of the original content.

III. Increase in the γ-globulin level began 8–11 days after infection, reaching its peak 21 days after infection. Vaccination with a different type of virus 23 days after infection had no apparent effect on the γ-globulin level in some cattle, whereas in others the increase continued until 6–9 days after vaccination.

IV. Examination of the total serum protein content yielded results conforming with those obtained in respect of its albumin and globulin fractions. Five hundred samples from 12 cattle were examined during a period of 60 days following immunization.—E.G.

Potel, K., & Korn, G. (1954). Experimentelle Untersuchungen über das Vorkommen von Skelettmuskelveränderungen bei mit Maul- und Klauenseuche infizierten Meerschweinchen. **[Experimental study of muscular lesions in foot and mouth disease in g. pigs.]** —*Arch. Exp. VetMed.* **8,** 1-19. **442**

The authors described results of histological examination of macroscopically visible lesions in skeletal muscles of 121 of 200 g. pigs, infected experimentally with F. & M. disease virus. Type A virus produced marked lesions 5–6 days after infection in 55% of g. pigs, type O in 31% and type C in 41%. There was necrosis and hyaline (Zenker's) degeneration, accompanied by inflammatory–proliferative lesions and disintegration of muscle fibres. Affected muscle material yielded titres of 10^{-6} the third day after infection, whereas the blood titre never exceeded 10^{-2} and demonstration of virus was, with few exceptions, impossible after the 4th day. The mechanism of concentration of virus in muscular tissue and the production of lesions are discussed. —E.G.

Dimopoullos, G. T., Fellowes, O. N., Washko, F. V. & Traum, J. (1955). **A serological test for identification and titration of vesicular stomatitis virus.**—*Proc. Soc. exp. Biol., N.Y.* **89,** 584-587. [Authors' summary modified.] **443**

An account of a method for identification and titration of vesicular stomatitis virus, involving the use of immune serum, fresh horse serum, heat-inactivated bovine serum, and g. pig erythrocytes. The results obtained were shown to be specific.

Chabaud, M. A., Sérié, C. & Andral, L. (1955). Électrophorèse et diagnostic de la rage. **[Electrophoresis in the diagnosis of rabies.]** — *Ann. Inst. Pasteur.* **88,** 420-434. **444**

Paper electrophoresis revealed a marked increase in the α_2 globulin of the sera of rabies-infected dogs, horses, donkeys, cattle and cats. This reaction was considered specific in the case of the dogs and formed the basis for differential diagnosis. In bacterial and parasitic conditions there was an increase in γ globulin with no appreciable increase in α_2 globulin. In Aujeszky's disease (the only neurotropic-virus disease which it was possible to study) there was an appreciable increase in α_2 globulin and a slight increase in serum-albumin. Electrophoresis might be of value for the early diagnosis of rabies in the living subject.—T.E.G.R.

Berger, K. & Puntigam, F. (1955). Über die Thiobarbituratnarkose von zur Gewinnung des Pockenschutzimpfstoffes dienenden Jungrindern. **[Thiobarbitone anaesthesia of calves used for the preparation of smallpox vaccine.]**—*Z. Hyg. InfektKr.* **141,** 396-403. **445**

Cattle were anaesthetized with thiopentone during scarification and during collection of skin crusts for the preparation of smallpox vaccine. The average dose of anaesthetic required was 0·0129 g./kg. body wt.—R.M.

Shear, H. H., Heath, H. D., Imagawa, D. T., Jones, M. H. & Adams, J. M. (1955). **Neutralization of teratogenic and lethal effects of influenza-A virus in chick embryos.** —*Proc. Soc. exp. Biol., N.Y.* **89,** 523-528. [Authors' conclusions copied *verbatim.*] **446**

Specific immune serum will protect the 48-hour chick embryo from the teratogenic and lethal effects produced by infection with influenza-A virus. Inasmuch as antiserum can neutralize these effects completely *in vitro,* and to a lesser extent *in ovo,* this study provides serological evidence to implicate the virus as the cause of the syndrome described.

Pearson, H. E. & Lagerborg, D. L. (1955). **Growth of mouse encephalomyelitis virus in murine nervous tissue tumors.**—*J. Immunol.* **75,** 134-136. [Authors' summary slightly modified.] **447**

Theiler's GDVII strain of mouse encephalomyelitis virus can be propagated in certain murine nervous tissue tumours but not in others. Tumour tissue grown in mice, embryonated eggs or tissue cultures varied considerably in its capacity to support growth of virus. There was no correlation between the capacity of brain tissue of a given strain of mice and the capacity of tumour tissue from the same strain to support virus proliferation.

Beaudette, F. R., Holden, P., Black, J. J., Bivens, J. A., Hudson, C. B. & Tudor, D. C. (1955). **Equine encephalomyelitis in pheasants in 1952-53.** — *Proc. 58th Ann. Meet. U.S. live Stk sanit. Ass.*, Omaha, 1954. pp. 309-321. **448**

This report records 9 further outbreaks in 1952–53 in commercially reared ring necked pheasants, making a total of 29 outbreaks since 1939. Certain features in the epidemiology are at variance with the usually accepted belief that mosquitoes provide the only important means of transferring virus from infected to susceptible individuals. For example, over 90% of birds in a pen may manifest symptoms while other susceptible flocks in contiguous pens may escape infection altogether. In addition outbreaks may persist beyond the season of perceptible mosquito activity.

—D. Luke.

Morales, R., C. E. (1953). Anemia infecciosa equina en Colombia. **[Equine infectious anaemia in Colombia.]**—*Rev. Fac. Med. vet. Bogota.* **21,** 147-170. **449**

The first reported outbreak of equine infectious anaemia in Colombia commenced in 1947. This paper gives details of 10 cases.

—R.M.

Wilde, J. K. H. (1955). **Observations and experiments of inactivated rinderpest tissue vaccines.**—*Brit. vet. J.* **3,** 419-431. **450**

In view of a revival of interest in inactivated rinderpest vaccines, particularly in West Africa, W. now publishes work done in Tanganyika some years ago. Lung tissue was proved to be unsuitable for vaccine preparation. The potency of five types of formolized and/or glycerinized vaccine after storage was studied. The best was a vaccine containing 50% glycerine and the addition of formalin made little difference. Vaccines containing normal saline had poorer keeping quality than those with no saline. A formolized vaccine retained a high degree of potency after two years' storage in the refrigerator and 49 days at room temperature. The duration of immunity after single, double and triple injections at weekly intervals varied from 5 to 12 months.

Shultz, G. & DeLay, P. D. (1955). **Losses in newborn lambs associated with bluetongue vaccination of pregnant ewes.**—*J. Amer. vet. med. Ass.* **127,** 224-226. [Authors' summary modified.] **451**

Losses in new-born lambs are reported in flocks in which ewes had been 4–8 weeks pregnant at the time of vaccination against bluetongue. The foetal lambs were apparently most susceptible to the modified virus vaccine during the fifth and sixth weeks of gestation. The main lesions were in the cerebellar and cerebral tissues. Histological and bacteriological examination and animal inoculation tests failed to reveal any infective agent.

Pokorný, V. (1955). Virusová pneumonie jako etiologická příčina hynutí jehňat. **[Virus pneumonia in lambs.]**—*Sborn. čes. Akad. zemědělsk. Věd, Živoč. Výr.* **28,** 271-286. [In Czech. English and Russian summaries.] **452**

Three passages in embryonated eggs were carried out by inoculation with saline-suspended lung material from a lamb which had died from a form of pleuro-pneumonia resembling infectious pleuro-pneumonia of goats. The disease was reproduced in two lambs by intranasal instillation of chorioallantoic fluid of the third passage after it had been centrifuged and purified by streptomycin and penicillin. P. stated that *Past. oviseptica* which is sometimes isolated from lambs with pneumonia is only a secondary contaminant.—E.G.

Chabr, L. (1955). Experimentální studie moru vepřů. **[Experimental study of swine fever.]** — *Sborn čes. Akad. zemědělsk. Věd, Živoč. Výr.* **28,** 147-170. [In Czech. German and Russian summaries.] **453**

A general account of the course and pathology of swine fever, studied in 4 piglets weighing between 40–50 kg., experimentally infected with material from a recent outbreak. It was stated that examination of the blood picture gave inconsistent results and should not be regarded as a diagnostic aid.—E.G.

Larski, Z. (1955). Hodowla tkankowa wirusa choroby cieszyńskiej świń. **[Tissue culture of Teschen disease virus.]**—*Méd. vét., Varsovie.* **11,** 589-590. **454**

An outline of a technique for the cultivation of Teschen disease virus on porcine em-

bryonic tissue. In subsequent inoculation tests all pigs inoculated intracerebrally with the tissue cultures succumbed to the disease with typical clinical symptoms.—M. GITTER.

LARSKI, Z. & SZAFLARSKI, J. (1955). Szczepionka przeciw chorobie cieszyńskiej swiń. **[A vaccine against Teschen disease.]** —*Méd. vét., Varsovie.* **11,** 276-279. **455**

A formolized, aluminium hydroxide absorbed vaccine was found to be safe for use in pigs and to confer immunity against challenge with doses of virus several times larger than those to which pigs would naturally be exposed.—J. R. MITCHELL.

I. BETTS, A. O., WHITTLESTONE, P., BEVERIDGE, W. I. B., TAYLOR, J. H. & CAMPBELL, R. C. (1955). **Virus pneumonia in pigs. Further investigations on the effect of the disease upon the growth-rate and efficiency of food utilisation.**—*Vet. Rec.* **67,** 661-665. **456**

II. BETTS, A. O., WHITTLESTONE, P. & BEVERIDGE, W. I. B. (1955). **Investigations on the control of virus pneumonia of pigs (V.P.P.) in the field.**—*Ibid.* 685-689 & 690. **457**

III. BARBER, R. S., BRAUDE, R., MITCHELL, K. G. & BETTS, A. O. (1955). **The eradication of virus pneumonia from a herd of Large White pigs at a research station.**—*Ibid.* 690-692. **458**

IV. WHITTLESTONE, P. & BETTS, A. O. (1955). **The eradication of virus pneumonia of pigs from a commercial herd.**—*Ibid.* 692-693. [Authors' summaries modified.] **459**

I. Eight experiments involving 120 piglets were undertaken to determine the effect of experimentally-induced virus pneumonia on growth-rate and efficiency of feed utilization. The experiments covered the period from weaning to bacon weight and the pigs were kept under a variety of conditions. Virus pneumonia depressed the growth-rate by 16% and the food conversion efficiency by 22%. The effect of the disease in the field was thought to be at least as great as this.

II. Attempts were made to eradicate virus pneumonia from 34 infected herds. At the time of writing, 5 of these herds were considered to have been freed, 5 others were probably free and progress was satisfactory in a further 12 herds. In addition, 4 herds were found which were naturally free from infection. The method used was based upon epidemiological considerations and aimed at breaking the cycle of infection. The authors assumed that all pigs were infected until proved otherwise. The method consisted of the following stages :— isolation of farrowing sows to ensure that any infection of the litter came only from the dam; determination of whether the litter was infected or not, as judged by clin. examination supplemented by P.M. examination of one or more piglets per litter if necessary and possible: in this way carrier sows were detected; grouping of litters judged to be free from the disease but retaining the groups in isolation; examination at slaughter of lungs from a considerable proportion of the group as a further check when they reached market weight; and replacement of the original breeding stock with healthy progeny as soon as possible. Clin. diagnosis alone proved unreliable but was of value as a screening test. Diagnosis by macroscopic examination of lungs at slaughter proved reliable in the great majority of cases. Histological examination was helpful in doubtful cases. Herds from which virus pneumonia had been eradicated and those which were naturally free from infection remained free providing they were kept closed.

III. Virus pneumonia was eradicated from a herd of pigs at a research station by a method based on epidemiological considerations. The whole process took 19 months and the herd has remained free since eradication was completed 18 months ago.

IV. Virus pneumonia was eradicated from a commercial herd of 23 sows and their followers, by a method which depended upon breaking the cycle of infection. The procedure took 19 months and the herd remained free from infection for at least six months.

POTOČEK, M. (1955). Příspěvek k problému psinky. **[Dog distemper.]** — *Sborn. čes. Akad. zemědělsk. Věd, Živoč. Výr.* **28,** 259-270. [In Czech. German and Russian summaries.] **460**

A strain of distemper virus was isolated from blood and organs of a dog with catarrhal, enteric and nervous symptoms and passaged in dogs, ferrets and chick embryos. Demonstration of virus, antigens and antibodies by the complement-fixation test was described.—E.G.

HUBÍK, R. & VAŘEJKA, F. (1955). Příspěvek k reakci vazby komplementu při psince (Febris catarrhalis infectiosa canum). **[The complement-fixation reaction in dog distemper.]**— *Sborn. vys. Šk. zemědělsk. & les. Fak.*,

Brno. Ser. B. **2**, (**23**), Nos. 1-2. 13 pp. [German and Russian summaries.] **461**

Diagnosis of dog distemper by the c.f. reaction was described, using as antigen extracts of dog and ferret lung, spleen and mesenteric lymph nodes, suspended in saline. Immune serum was produced from dogs and g. pigs, but attempts to produce a suitable serum from rabbits were unsuccessful.

—E.G.

MANSI, W. (1955). **The value of the complement-fixation test in the study of canine distemper complex and Rubarth's disease.**—*J. comp. Path.* **65**, 291-308. [Author's conclusions modified.] **462**

The paper describes in detail the technique of the c.f test used to study the viruses of the canine distemper complex and of canine virus hepatitis. The necessity for using more than one dilution of complement is explained.

There is no antigenic relationship between the two groups of virus-strains and it is not possible to distinguish the different strains of either group by this test.

The distribution of soluble antigen in the bodies of infected, recovered and immune animals has been studied as has the antibody response in ferrets, dogs and foxes inoculated with these viruses.

The results obtained with the c.f. test confirmed the findings obtained by biological, immunological and pathological methods.

LARIN, N. M. (1955). **Canine distemper virus in the ferret.**—*J. comp. Path.* **65**, 325-333. [Author's conclusions slightly modified.] **463**

Canine distemper virus has hitherto been considered as a single entity because of its behaviour in the ferret which has been accepted as the most convenient test host for the isolation and propagation of the virus. The study of 55 virus strains isolated from various parts of Britain has shown, however, that the strains varied considerably on isolation and became changed in virulence on passage. Some variants of the strains studied produced no immunity in the ferret to other variants. These findings are regarded as evidence that canine distemper is not caused by a homogeneous virus, but by several types which are not stable entities with predictable behaviour. These variants may undergo changes and are able to give rise to new forms of a modified nature and of different biological behaviour. The significance of this phenomenon of virus variability is briefly discussed.

JACOTOT, H., VALLÉE, A. & VIRAT, B. (1954). L'immunité contre la myxomatose des lapins est-elle transmissible de la mère à ses lapereaux? **[Is immunity to myxomatosis transmissible from the dam to her offspring?]**—*Bull. Acad. vét. Fr.* **27**, 465-472. Discussion: pp. 472-473. **464**

On the basis of small-scale experiments with rabbits, and on the work of other authors, it was concluded that immunity to myxomatosis was not transmitted from the dam to her offspring, although in some cases the offspring of non-immunized does died from artificial infection sooner that the offspring of immunized does. The possible transfer of myxomatosis antibodies *via* the placenta and the milk was discussed.—R.M.

VOGEL, F. S. & PINKERTON, H. (1955). **Spontaneous salivary gland virus disease in chimpanzees.**—*Endocrinology*. **60**, 281-285. [Authors' summary slightly modified.] **465**

Salivary gland virus disease with pathognomonic intranuclear inclusion bodies was present in 8 of 12 chimpanzees. In three cases the disease was disseminated, involving also the cortex of each adrenal gland and in one case the myocardium as well. The incidence of the disease, its occurrence in disseminated form, and its presence in adult as well as young chimpanzees indicate a low degree of natural resistance in this primate to infection by the salivary gland virus.

HASHMI, Z. A. & HASNAIN, H. (1954). **Use of citrated whole-blood in the rapid haemagglutination test for Newcastle disease.**—*Proc. VIth Pakistan Sci. Congr.* Karachi, 1954. Pt. III. p. 240. [Only abst. given. Abst. from abst.] **466**

Citrated whole-blood was successfully substituted for washed r.b.c. in the rapid haemagglutination test for N.D. Observations were made on the comparative intensity of reaction, and keeping quality at room temp. and at 5°C. of washed r.b.c. suspensions and citrated blood from 14 species of mammals and birds. Camel r.b.c. exhibited the strongest reaction and could be stored for the longest period, namely 4 days at room temp, and 160 days at 5°C.

WILLIAMSON, A. P., SIMONSEN, L. & BLATTNER, R. J. (1955). **Dialyzable factor in normal allantoic fluid inhibiting hemagglutination patterns with Newcastle disease virus**—*Proc.*

Soc. exp. Biol., N.Y. **89,** 206-209. [Authors' summary modified.] **467**

An inhibitor of haemagglutination present in allantoic fluid suspensions of certain strains of Newcastle disease virus was largely removed by dialysis so that definite and reproducible haemagglutination patterns were obtained with virus suspensions which had previously appeared to be non-agglutinating. The inhibiting factor was present in normal allantoic fluid of 13-day-old eggs and in the dialysate of the fluid. The inhibiting activity was 8–16 times more effective at 4°C. than at 25°C. and it resisted heating at 100°C. for 30 min. It was destroyed by receptor-destroying enzyme and was 4 times as effective when mixed with the r.b.c. before addition of the virus as when the inhibitor and virus were mixed before adding the r.b.c. R.b.c. mixed with inhibitor for varying periods regained their agglutinability if washed free from inhibitor. Moreover, the inhibitor removed from such r.b.c. retained its inhibitory titre undiminished. N.D.V. did not destroy or reduce the inhibitory capacity when allowed to mix with inhibitor for 2 hours at 25°C.

Placidi, L. (1954). Le virus de Newcastle chez le porc. **[Experimental infection of the pig with Newcastle disease virus.]**—*Bull. Acad. vét. Fr.* **27,** 375-377. **468**

A highly virulent strain of N.D.V. was inoculated intratracheally or intrathoracially into 2 piglets. Both died after 9–11 days and N.D.V. was recovered from them before and after death.—J. T. Done.

Buck, G., Quesnel, J.-J. & Ramambazafy, H.-D. (1954). Comportement du porc vis-à-vis du virus de newcastle. **[Behaviour of the Newcastle disease virus in the pig.]**—*Bull. Acad. vét. Fr.* **27,** 367-370. **469**

Using strains of N.D.V. from Pakistan and Madagascar the authors made the following observations:— (1) Seven piglets inoculated intracerebrally with N.D.V. became completely paralysed after an illness closely resembling Teschen disease. The microscopic lesions in the c.n.s. were also similar. Nine piglets inoculated intranasally remained normal. (2) N.D.V. was passaged serially in pigs intracerebrally for 8 passages. After 5 passages it became pathogenic for the pig by the nasal route. (3) After one passage in pig brain N.D.V. was pathogenic for one of two chickens. Third passage material caused no disease in chickens but protected them against virulent N.D.V. Fourth to seventh passage material produced neither disease nor immunity in chickens. (4) First pig passage material behaved as typical N.D.V. when inoculated into embryonated eggs. Results were negative with 2nd and 3rd passage material. (5) Five pigs which had received N.D.V. orally or intranasally were completely susceptible to Teschen disease. Five pigs which had remained healthy after intranasal inoculation of pig passaged N.D.V. were challenged with Teschen disease virus; only one succumbed. (6) Four piglets solidly immune to Teschen disease survived intracerebral inoculation of N.D.V. which was regularly lethal for non-immune pigs. (7) Live N.D.V. vaccine inoculated subcutaneously into 2 piglets provoked no reaction and gave no protection against Teschen disease. The same material inoculated intracerebrally into 2 piglets caused paralysis after a protracted incubation period. (8) Seven chickens inoculated subcutaneously and 2 intracerebrally with Teschen disease virus showed no reaction and were not protected against the Madagascar strain of N.D.V.—J. T. Done.

Chanock, R. M. (1955). **Cytopathogenic effect of Newcastle virus in monkey kidney cultures and interference with poliomyelitis viruses.**—*Proc. Soc. exp. Biol., N.Y.* **89,** 379-381. [Author's summary modified.] **470**

Newcastle disease virus accidentally found in fowl plasma used as a tissue culture reagent was serially propagated in monkey kidney epithelial cells, in which it produced granular degeneration and disintegration. Ten to 50% of these cells were then found to be almost completely resistant to the cytopathogenic effect of the 3 types of poliomyelitis and Type 3 human "enteric" viruses; there was partial resistance, as evidenced by a delay in appearance of cytopathogenic change, to Types 1, 2, and 5 human "enteric" viruses.

van Waveren, G. M. (1955). Vaccination contre la maladie de Newcastle. **[Vaccination against Newcastle disease.]**—*Bull. Off. int. Epiz.* **44,** May, pp. 107-118. [English summary.] **471**

Killed vaccines proved unsatisfactory in inducing active immunity. Satisfactory vaccines were prepared using live attenuated strains designated Blacksburg B_1 (Hitchner), and Roakin (Beaudette).—D. Luke.

Cąkałowa, A., Teklińska, M. & Karczewski, W. (1955). Zachowanie się miana hemo-

wania hemaglutynacji oraz długotrwałość odporności po domięśniowym zastosowaniu szczepionki indyjskiej sześciotygodniowym kurczętom. **[Newcastle disease vaccine and immunity in chicks.]**—*Méd. vét., Varsovie.* **11,** 393-395. **472**

Mukteswar vaccine was administered i/m to 600 chicks, six weeks old, and subsequently haemagglutination-inhibition tests were carried out every 2 weeks for 11 months. The titre was at its highest one month after vaccination and then gradually fell. The experimental birds withstood a challenge 13 months after vaccination.—M. Gitter.

Swain, R. H. A. (1955). **A microscopical study of the reproduction of psittacosis virus.**—*Brit. J. exp. Path.* **36,** 507-514. [Author's summary modified. **473**

The results of a phase contrast photomicrographic study of the reproduction of psittacosis virus in the spleen of mice inoculated i/p were compared with electron micrographs of the virus during its multiplication in the yolk-sac of the chick embryo. Measurements of the sizes of the various forms of the virus showed a decrease in the particle size with the lapse of time. Concurrently a limiting membrane developed and the protoplasm of the virus particle was condensed into discrete masses. S. concluded that during the active phase of its reproduction, psittacosis virus divides by binary fission.

Schoop, G. & Kauker, E. (1955). Tauben als Infektionsquelle eines menschlichen Ornithosefalles. **[Pigeons as a source of infection of human beings with psittacosis.]**—*Mh. Tierheilk.* **7,** 120-124. **474**

A breeder of pigeons having contracted psittacosis, complement-fixation tests revealed that 3 of his 8 pigeons were positive reactors. The birds were kept under observation for 8 weeks, during which the number of positive reactors rose to 6. There were no symptoms. P.M. examination revealed swelling of the spleen and yellow discoloration of the liver. Mice injected i/p with suspensions of affected spleen and liver did not die, but the spleen became greatly enlarged.—M.G.G.

Angulo, J. J. (1953). **Data on the mouse spinning test.**—*Arch. ges. Virusforsch.* **5,** 213-216. [In English.] **475**

The author reports the results obtained by using this test in normal and infected mice to detect nervous disorders. The test was of no value in diagnosis of specific nervous diseases, nor were the results consistent when the test was repeated with any individual mouse.—W. Mansi.

Bang, F. B. (1955). **Pathology of the cell infected with viruses: morphological and biochemical aspects.**—*Fed. Proc.* **14,** 619-632. **476**

B. discussed the lesions produced in cells by viruses. These are usually observed in tissue cultures by phase or electron microscopy. The use of ultra-violet light in nucleic acid studies, enzymic and electrical studies is also noted. A host-parasite relationship is demonstrated by the release of virus before the death of the cell. This may be achieved by the disintegration of infected cellular extensions, discharge into vacuoles, or by the appearance of virus at the extremities of the microvilli in allantoic cells. Although viruses cannot be classified according to the cellular lesion produced, it is now possible to describe lesions of the individual structures making up the cell system.—John Seamer.

Barnard, R. D., Goldman, B. & Stanton, H. T., Jr. (1954). **Mechanism of suppression of hemagglutinating viruses.**—*Science.* **119,** 391. **477**

The authors advanced a theory that certain heteropentacyclic compounds, *e.g.* chorophyllin and APF (the antibiotic-free and cobalamin-free carbohydrate fraction of the streptomycin fermentation residue made available as poultry feed) compete with haemagglutinating viruses for r.b.c. acceptor mechanisms. They are therefore competitive inhibitors rather than viricidal or viristatic agents and merit examination as such.

—John Seamer.

LoGrippo, G. A. & Hartman, F. W. (1955). **Antigenicity of β-propiolactone-inactivated virus vaccines.** — *J. Immunol.* **75,** 123-128. [Authors' summary modified.] **478**

A simple and rapid procedure for the preparation of inactivated virus vaccine is described using β-propiolactone (BPL), an agent not previously employed in the preparation of vaccines. It was capable of inactivating viruses in 10–15 min. at 37°C., whereas formalin and phenol required days for the same degree of inactivation under parallel conditions. Satisfactory inactivated vaccines were prepared with Eastern equine encephalomyelitis virus, rabies virus and the MM strain of murine encephalomyelitis virus. A significantly higher degree of antigenicity is demon-

strated with BPL-inactivated virus vaccines than with formalin- and phenol-inactivated virus vaccines. Two to four times the minimal effective viricidal conc. of BPL was used in the preparation of virus vaccines without critical loss in antigenicity.

DAY, M. F. (1955). **Mechanisms of transmission of viruses by arthropods.**—*Exp. Parasit.* **4,** 387-418. [Author's conclusions modified.] **479**

There are two main mechanisms of viral transmission by arthropods, namely mechanical and biological. Three subdivisions of the mechanical type have been recognized, and theoretically there are three possible subdivisions of the biological type. The virus could be ingested, pass through the haemocoele and be excreted with the saliva without having been modified in any way. It could increase in amount without having been modified in any way. It could increase in amount without otherwise changing; or it could both increase and undergo a cyclical change; this is the cyclopropagative mechanism of Huff (1931). It is to some extent a matter of definition which of these categories is used to describe the process occurring in an arthropod vector, but it is suggested that the cyclopropagative type of mechanism best describes most examples of biological transmission of viruses by arthropods. Evidence for the occurrence of changes in the virus during multiplication in the vector is inadequate, but some data are available in the work of Maramorosch (1953) and of Price (1954). What little is known about the process of multiplication of viruses in vectors suggests that they occur in non-infective form during the latent period, and this is tantamount to saying that they undergo cyclical changes in the vector.

The conclusions from this review assist in the selection of crucial tests for determining the virus-vector relationships of apparently anomalous viruses. There has, for example, been considerable discussion about appropriate criteria for allocating certain aphid-borne plant viruses to their correct groups. The most useful test for deciding whether a plant virus belongs to the "vector-direct" or "vector-latent" groups is to determine whether the vector can transmit the disease following a moult. The experiment is not difficult to perform, yet the information is available for few viruses.

In animal viruses the occurrence of a latent period is generally sufficient criterion for deciding whether a pathogen is transmitted by the mechanical or by the biological mechanism.

NIŽNÁNSKY, F. & GMITTER, J. (1955). K otázke vylučovania zárodkov *Coxiella burneti* hospodárskými zvieratmi a k existencii ich vektorov na Slovensku. **[Excretion of *R. burneti* by farm animals and vectors of Q fever in Slovakia.]**—*Sborn. čes. Akad. zemědělsk. Věd, Živoč. Výr.* **28,** 287-294. [In Slovak. German and Russian summaries.] **480**

The authors failed to demonstrate by g. pig inoculation the presence of *R. burneti* in sheep and in cows' milk from Q fever foci in Slovakia, nor was this method successful for the demonstration of the organism in ticks and in the organs of 4 deer from the same regions. Lung material and blood of sheep which had yielded positive serological tests gave negative results when examined by the g. pig-test.

—E.G.

FARRELL, R. K., OTT, R. L. & GORHAM, J. R. (1955). **The clinical laboratory diagnosis of salmon poisoning.**—*J. Amer. vet. med. Ass.* **127,** 241-244. [Abst. from authors' summary.] **481**

A discussion of the routine methods for the clin. diagnosis of salmon poisoning disease of dogs and foxes *(Neorickettsia helminthoeca* infection), with an account of a method of diagnosis by microscopic examination of stained material aspirated from lymph nodes.

See also absts. **667** (report, London School of Hyg. & Trop. Med.) **661** (report, N. Rhodesia); **662** (report, India); **663** (report, Sarawak); **664** (report, Trinidad & Tobago); **665** (report, Bechuanaland); **666-667** (reports, Gambia); **668** (reports, Tanganyika); **669** (report, FAO).

IMMUNITY

I. OSLER, A. G. & HILL, B. M. (1955). **Kinetic studies of complement fixation. I. A method.**—*J. Immunol.* **75,** 137-145. **482**

II. HILL, B. M. & OSLER, A. G. (1955). **Kinetic studies of complement fixation. II. The role of the aggregating capacity of antibody and its heterogeneity.**—*Ibid.* 146-154. [Authors' summaries modified.] **483**

I. A kinetic procedure is described for the study of complement-fixation in highly dilute immune systems. Evidence pertaining to the validity of the method is presented along

with data which indicate that fixation does not necessarily yield a reliable index of antibody content.

II. The complement-fixing potency of an immune serum may be related to the aggregating properties of the antibody. Antibody which flocculates readily with homologous antigen not only fixes complement efficiently but is more readily subject to a hindrance effect in the fixation of complement by preformed aggregates. In addition, the variations in the specific c.f. potency observed in different sera may also exist among different portions of the antibody in a single immune serum.

I. Coons, A. H., Leduc, E. H. & Connolly, J. M. (1955). **Studies on antibody production. I. A. method for the histochemical demonstration of specific antibody and its application to a study of the hyperimmune rabbit.**—*J. exp. Med.* **102,** 49-60. **484**

II. Leduc, E. H., Coons, A. H. & Connolly, J. M. (1955). **Studies on antibody production. II. The primary and secondary responses in the popliteal lymph node of the rabbit.**—*Ibid.* 61-72. **485**

III. White, R. G., Coons, A. H. & Connolly, J. M. (1955). **Studies on antibody production. III. The alum granuloma. IV. The role of a wax fraction of Mycobacterium tuberculosis in adjuvant emulsions on the production of antibody to egg albumin.**—*Ibid.* 73-82; 83-103. [Authors' summary and conclusions modified.] **486**

I. The specific histochemical demonstration of antibody in cells in frozen sections of tissues consisted of (a) reaction between antibody in the tissue and dilute antigen applied to the section, and (b) the detection of absorbed antigen by means of a precipitin reaction using antibody labelled with fluorescein. Examination by fluorescence microscopy revealed yellowish-green fluorescence over those areas where a precipitate had formed.

A study of the tissues of hyperimmune rabbits after the last of a series of i/v injections of antigen had been given, revealed that antibody against human γ-globulin or ovalbumin was present in groups of plasma cells in the spleen, lymph nodes, ileum and liver. Small amounts of antibody were occasionally seen in lymphocytes in the spleen and lymph nodes.

II. After an antigenic stimulus, antibody was first demonstrated in the cytoplasm and often in the nucleus of large immature cells in the medullary areas of lymph nodes draining the site of injection. Morphologically these cells were typical haematogenous stem cells. As they multiplied and differentiated, the concentration of antibody in their cytoplasm increased, until colonies of typical mature plasma cells containing antibody developed. There was a marked difference between primary and secondary response to antigen. The former was characterized by the development of very few cells containing antibody, while in the latter there were hundreds of such cells in a similar area.

III. After s/c injection of ovalbumin or diphtheria toxoid precipitated with aluminium phosphate, the production of antibody proceeded partly within the regional lymph nodes and partly in granulation tissue surrounding the nodule which develops at the site of injection. Initial production of antibody took place in the regional lymph nodes and did not commence at the site of injection until 14 days after injection. The adjuvant effect of aluminium phosphate was interpreted as being due partly to delay in absorption of antigen and partly to the local production of granulomatous tissue, containing plasma cells which produce antibody.

After injection of ovalbumin as a water-in-oil emulsion, a pronounced adjuvant effect was demonstrated when the wax of tubercle bacilli was incorporated into the oily phase of the emulsion. A striking feature of the action of the wax was the stimulation of proliferation of macrophages at the site of injection, and the production of morphological abnormalities in them. These cells were not active in the formation of antibody. The great increase in the antibody content of serum following the injection of wax emulsion was attributed to widespread proliferation of plasma cell elements in the lymph nodes, liver and spleen.

Roberts, K. B. (1955). **Antibody formation in the omentum.**—*Brit. J. exp. Path.* **36,** 357-362. [Survey of paper slightly modified.] **487**

R. estimated agglutinin titres in extracts of omentum, other organs, and in serum, after i/p injections of killed *Salmonella.* In some experiments a different species of *Salmonella* was injected simultaneously into the blood stream. From immunized animals, living or heat-killed omental tissue was transferred to normal rabbits. The results indicated that the omentum can be a site of antibody formation.

CROSLAND-TAYLOR, P. J. (1955). **The effect of X-rays on the secondary antibody response.** — *Brit. J. exp. Path.* **36,** 530-533. [Author's summary and conclusions slightly modified.] **488**

The action of X-rays on the secondary response in rabbits to tetanus toxoid was studied. This response is radio-sensitive but differs from the radio-sensitivity of the primary response in that a dose of 400 R has to be given two or more days before the antigen to reduce the peak titre. There is delay in antitoxin rise whether the X-rays are given 6 hours, 2 days or 10 days before the antigen. Smaller doses of X-rays (100 and 25 R) given 10 days before the antigen may delay the antitoxin response but have very little effect on the peak titre.

PRUZANSKY, J. & AXELROD, A. E. (1955). **Antibody production of diphtheria toxoid in vitamin deficiency states.** — *Proc. Soc. exp. Biol., N.Y.* **89,** 323-325. [Authors' summary slightly modified.] **489**

Antibody response to purified diphtheria toxoid in vitamin deficient rats and their respective controls was determined. Impairment of antibody response was noted in pantothenic acid, pyridoxine, pteroylglutamic acid, biotin, riboflavin and vitamin D deficiencies. Vitamin A deficiency had only a moderate effect and thiamine-deficient rats showed normal antibody titres.

See also absts. **337** (anthrax); **348** (use of Strain P. in TB. of cattle); **349** (allergy in mycobacterial infections); **350** Johne's disease in sheep); **353** (conglutination test in glanders); **354** (enzymic purification of swine erysipelas vaccine); **356** (adjuvant vaccine against bovine haemorrhagic septicaemia); **358** (live vaccine for porcine pasteurella broncho-pneumonia); **377-385** (brucellosis); **390-393** (leptospirosis); **397** (vibriosis); **406** (bovine contagious pleuro-pneumonia); **408** (caprine contagious agalactia); **433** (anaplasmosis); **440-441** (F. & M. disease); **450** (rinderpest); **451** (bluetongue); **455** (Teschen disease); **461-462** (distemper); **464** (myxomatosis); **466-472** (Newcastle disease); **477** (suppression of haemagglutinating viruses); **478** (antigenicity of inactivated viruses); **493** (schistosomiasis); **497-499** (trichinosis); **504** (lungworms); **610** (precipitin test for detection of horse meat); **611** (lipid extraction of antisera).

PARASITES IN RELATION TO DISEASE [GENERAL]

EICHLER, W. (1954). Aerosolanwendung in der Parasitenbekämpfung. **[Aerosols for the control of arthropod parasites and lungworms.]**—*Mh. VetMed.* **9,** 85-86. **490**

A note on the use of insecticides (D.D.T., benzene hexachloride) and anthelmintics (santonin, "askaridol") as aerosols, for the destruction respectively of ectoparasites on premises, in the soil, or on animals, or as repellents, *e.g.* of Simuliidae; and of lungworm larvae either on pasture or in sheep.

—H. BEHRENS.

PARASITES IN RELATION TO DISEASE [ARTHROPODS]

WINTERINGHAM, F. P. W. & BARNES, J. M. (1955). **Comparative response of insects and mammals to certain halogenated hydrocarbons used as insecticides.**—*Physiol. Rev.* **35,** 701-739. **491**

This is a very comprehensive review of the physiological and biochemical actions by which a number of halogenated hydrocarbons achieve their insecticidal effect, and their toxicity to mammals. These substances include D.D.T. and its analogues, benzene hexachloride, "aldrin", "dieldrin", chlordane, methyl bromide, ethylene dibromide, ethylene dichloride, dichlorobenzene. There are 335 references.—D. W. JOLLY.

ANON. (1954). **The use of the newer insecticides in the control of cattle tick.**—*Qd agric. J.* **78,** 207-211; 285-289. **492**

These articles summarize work in Australia on the control of *Boophilus microplus.*

Complete eradication of ticks is not recommended because of the risk of the cattle losing their immunity to tick fever.

Larvae and all recently moulted stages are susceptible. Susceptibility decreases with the hardening of the cuticle, fully engorged nymphs when protected by two integuments being the most resistant.

There is evidence of ticks developing a resistance to the insecticides; there is no evidence of a D.D.T. resistance; those resistant to arsenic are not resistant to other insecticides but those resistant to benzene hexachloride (B.H.C.) may be resistant to toxaphene, chlordane, heptachlor, and a little resistant to arsenic. D.D.T. (0·5%) has been used in dipping vats and spraying fluids. Its effects on ticks are a little irregular. It has remained stable in a constantly used dipping vat for 5 years; its residual effect is high; it is not toxic to cattle but should not be used with arsenic solutions.

Results of dipping and spraying with B.H.C. (0·5%γ-isomer) are uncertain. B.H.C.

has remained stable in a dipping vat for 5 years; its residual effect is lower than that of D.D.T., and it can be toxic to cattle.

Results of dipping and spraying with toxaphene (0·5%) are a little better than with D.D.T. and B.H.C. Toxaphene has remained stable in a dipping vat for 3 years; it has a fairly high residual effect, and it may be toxic to calves under 3 months old.

Chlordane (0·25%) and dieldrin (0·05%) have been tested as spraying fluids in dairy herds for 5 and 3 years respectively with satisfactory results. The residual effect of each was fairly high with no evidence of toxicity to cattle.

Menthachlor (chlorinated phellandrene) heptachlor, E605 (parathion) and aldrin have been found effective in laboratory tests.

—M. D. Murray.

See also abstr. **416** (W. African Inst. for Trypanosomiasis Research); **490** (aerosols); **657** (report, London School of Hyg. & Trop. Med.); **666-667** (reports, Gambia).

PARASITES IN RELATION TO DISEASE [HELMINTHS]

Kagan, I. G. (1955). **Studies on the serology of schistosomiasis. I. The *in vitro* activity of cercariae and miracidia in serum of experimental, natural, and immunized hosts.**—*Exp. Parasit.* **4,** 361-376. [Author's summary modified.] **493**

K. studied the formation of a membrane around cercariae in blood serum from animals infected with schistosomes. Antigen prepared from several stages in the life-cycle of two species of schistosomes was effective in invoking the formation of antibodies in rabbits. The formation of a membrane around cercariae occurred in blood from a number of hosts 10–52 days after exposure to infection. That part of serum responsible for membrane formation was absorbed by living cercariae, or by a homogenate of cercariae that had been heated at 94°C. for 30 min. For the detection of antibody in the blood of animals infected with or immunized against schistosomes, a test based on the immobilization of miracidia placed in inactivated serum was more sensitive than the formation of a membrane around cercariae placed in active serum. Normal vertebrate serum contains non-specific substances which kill miracidia but, except in horse serum, these substances were destroyed or weakened by heating the serum at 50°C. for 30 min.

Kuntz, R. E. & Malakatis, G. M. (1955). **Susceptibility studies in schistosomoasis. IV. Susceptibility of wild mammals to infection by *Schistosoma haematobium* in Egypt, with emphasis on rodents.**—*J. Parasit.* **41,** 467-475. **494**

Various species of rodents were most susceptible to artificial infection with *S. haematobium*. Carnivores were not susceptible, and only a small percentage of hedgehogs developed infestation.—R.M.

Ginsberg, A. (1955). ***Cysticercus bovis* (beef Measles) in Kenya.**—*E. Afr. agric. J.* **20,** 216-219. **495**

Losses due to *Cysticercus* in Kenya are estimated at £30,000 per year, despite sterilization of carcasses by freezing. In some areas abattoir records revealed that over 50% of adults and 60% of calves had been infested. In one area the meat inspection practices have been temporarily revised: under the new system all carcasses in which less than 20 cysts are found at routine meat inspection are frozen for 14 days. Those which harboured less than 7 cysts are then released for general sale after further inspection; those which harboured more than 7 cysts are released for sale to manufacturers. Strict hygiene of African labour on European farms is essential.—M. L. Clarke.

Kozłowska, J. (1953). Pasożyty przewodu pokarmowego psów w Łodzi. **[The helminth parasites of dogs in the city of Lodz.]**—*Acta parasit. polon.* **1,** 403-410. [In Polish. English and Russian summaries.] **496**

A survey conducted on 70 dogs revealed the presence of 3 types of nematodes and 4 of cestodes. K. emphasized the absence of *Mesocestoides lineatus* which was due to successful destruction of vermin in the town. Since the highest incidence of *Dipylidium caninum* was found among stray dogs, proper control is advocated.— J. R. Mitchell.

Sadun, E. H. & Norman, L. (1955), **The use of an acid soluble protein fraction in the flocculation test for the diagnosis of trichinosis.** — *J. Parasit.* **41,** 476-482. [Authors' summary slightly modified.] **497**

An acid-soluble protein fraction antigen and a whole-larval antigen were used in the flocculation test for the diagnosis of trichinosis

with human, pig, and rabbit sera. The results obtained with the two antigens were very similar. The acid-soluble fraction, however, could be stored indefinitely, seemed to be more sensitive and the test was easier to read and to interpret. No consistent differences in the reactions were obtained from sera of man and of the lower animals.

CAMPBELL, C. H. (1955). **The antigenic role of the excretions and secretions of *Trichinella spiralis* in the production of immunity in mice.** — *J. Parasit.* **41**, 483-491. [Author's summary slightly modified.] **498**

The excretions and secretions of *T. spiralis* were collected by incubating the infective larvae in a nutrient fluid for 5 days, after which the worms were discarded. Injections of the excretions and secretions stimulated the production of an immune response indicated by a more rapid loss of adult worms, stunting of adult female worms, and the recovery of smaller numbers of larvae from injected mice as compared with control mice.

COKER, C. M. (1955). **Effects of cortisone on *Trichinella spilalis* infections in non-immunized mice.**—*J. Parasit.* **41**, 498-504. [Author's summary slightly modified.] **499**

Cortisone treatment of non-immunized mice receiving an infection with *T. spiralis* resulted in longer persistence of more adult worms in the intestine, and establishment of more larval worms in the musculature, than in control mice. Results of this experiment supported the view that non-immunized, mature mice develop a delayed acquired immunity against an initial infection with *T. spiralis*. Treatment of such mice with cortisone, beginning shortly before infection and extending through the period when this acquired immunity normally would manifest itself, prevented or greatly weakened the expression of the immunity.

ROBERTS, F. H. S. & BREMNER, K. C. (1955). **The susceptibility of cattle to natural infestations of the nematode *Haemonchus contortus* (Rudolphi 1803) Cobb 1898.**—*Aust. vet. J.* **31**, 133-134. **500**

In the course of observations on the epidemiology of nematode infestations in calves in Queensland, infective larvae of *H. contortus* were seen in faecal cultures made for the differentiation of species present. The calves harboured *H. placei*, the usual species in cattle, and it is thought that *H. contortus* was introduced by goats grazing the same pastures.

The trend followed by the egg counts for *H. placei* was similar to that previously reported [*V.B.* **23**, 2325] and denotes that, when the calf is exposed to infestation, the count increases to a max. level and then decreases to a low level at which it usually remains. There was a similar trend in the case of *H. contortus*, but the decrease in counts was evident earlier than with *H. placei*. *H. contortus* appeared to be completely eliminated from the calves, but light infestations with *H. placei* persisted. Further, the infestations with *H. contortus* were much lighter than those with *H. placei*.

During the 8 years *H. contortus* had been seen in cattle only when there had been contact with sheep or goats.—H. MCL. GORDON.

SHUMARD, R. F., HERRICK, C. A. & POPE, A. L. (1955). **The effect of diet on the length of third stage larvae produced by adult *Haemonchus contortus* harbored by lambs.**—*J. Parasit.* **41**, 542-544. [Authors' summary modified.] **501**

Lambs with pure infections of *H. contortus* were given a basal diet to which sodium chloride and either iodine, cobalt, manganese, or a mixture of trace elements had been added. Ova in the faeces of these lambs were separated by centrifugation and were cultured in the faeces of uninfected lambs on the same rations. Significant differences in the length of the third-stage larvae were demonstrated. These were apparently due to the nutrition of the host harbouring the parents of of the larvae, and were not due to the nutrition of the free-living first and second stage larvae. The longest larvae developed from adults harboured by lambs receiving supplements of salt and cobalt or trace elements.

GIBSON, T. E. (1955). **Studies on *Trichostrongylus axei*. IV. Factors in the causation of pathogenic effects by *T. axei*.**—*J. comp. Path.* **65**, 317-324. [Author's conclusions modified.] **502**

An experiment carried out on four groups of four lambs, two of which received a full diet and two a poor one, confirmed the results recorded previously [*V.B.* **24**, 3559; **25**, 440] concerning the pathogenesis of *T. axei* infestation in sheep. In addition, it was demonstrated clearly that infestations of *T. axei* cause a marked reduction in appetite during the acute stage of the infection. The resulting loss in

wt. was as much as 35 lb. per lamb, and the animals did not make good this loss after throwing off their infestation but always remained lighter than the controls. A further experiment involving a group of three infested lambs and two groups of three worm-free lambs, in which one of these latter groups was restricted in its food intake to the amount consumed by the infested lambs, revealed that some factor in addition to depression of appetite played a role in the causation of pathogenic effects by *T. axei.*

DRUDGE, J. H., LELAND, S. E., JR., WYANT, Z. N. & ELAM, G. W. (1955). **Studies on *Trichostrongylus axei* (Cobbold, 1879). I. Some experimental host relationships.**—*J. Parasit.* **41,** 505-511. [Authors' summary modified.] **503**

A natural infection of *T. axei* in a horse was experimentally transmitted to lambs and calves both directly and indirectly. In sequence, following the infection of a calf and two lambs, this strain of *T. axei* again matured in the horse. Domestic rabbits were successfully infected with five strains (three equine, one ovine, and one bovine) of *T. axei* initially encountered as natural infections in these hosts. The bovine and one of the equine strains also developed to maturity in both g. pigs and hamsters, although these animals were not as suitable hosts as the rabbit. No evidence of maturation of bovine strain larvae was found in rats. *T. colubriformis,* which accompanied the ovine strain of *T. axei,* also matured in rabbits.

RUBIN, R. & WEBER, T. B. (1955). **The effect of immune serum on *Dictyocaulus viviparus* in calves. Preliminary report.**—*Proc. helm. Soc. Wash.* **22,** 124-129. [Authors' summary modified.] **504**

Two calves survived a known lethal dose of lungworm larvae when 5 ml. per lb. body wt. of immune serum was given i/v to one calf at the time of infection and to the other 8 days after infection. Three calves given 0·1, 1, and 2·5 ml. of immune serum per lb. body wt. at the time of administration of the larvae died 48, 33, and 37 days later, respectively. The comparatively low output of larvae in the faeces of the 2 calves which survived indicated the establishment of a relatively light worm burden. Comparisons of the total worm burden and the proportion of large to small worms in the calves which died indicated transfer of resistance to infection related in degree to the amount of immune serum given.

ROSE, J. H. (1955). **Observations on the bionomics of the free-living larvae of the lungworm *Dictyocaulus filaria*.**—*J. comp. Path.* **65,** 370-381. [Author's conclusions slightly modified.] **505**

Observations on sheep faeces out of doors, and on the surrounding herbage and soil, indicated that the period of survival of the larvae of *D. filaria* varied from season to season. They persisted for 23 weeks from January to June, but for only 7 weeks from June to August. Many larvae passed out from the faeces on to the herbage. They were capable of migrating from the soil surface up to within one inch of the tip of grass blades 3 inches high. The rate of development varied with the time of year; during November and December it took at least 6 weeks for larvae to develop to the third stage, but less than a week during June and August. In the laboratory, larvae survived best in wet faeces at low temperatures. Under such conditions the max. period of survival was 48 weeks as compared with 41 weeks in dry faeces. Extreme desiccation resulted in rapid mortality. Third stage larvae, which were the most resistant, survived for a max. of 4 days at a relative humidity of 75%, but died out more rapidly under drier conditions. Larvae were markedly resistant to temperatures below freezing point, some third stage larvae surviving for 19 days. The rate of development was slowed down as the temp. was lowered. At 5°C., infective larvae were first observed after 20 days, whereas at 25°C. this stage was reached in 5 days.

ZAVADIL, R. (1955). Příspěvek k diagnostice a klinice cizopasníka *Syngamus merulae.* [*S. merulae,* **a parasite of wild birds, occasionally occurring in poultry.**]—*Sborn. čes. Akad. zemědělsk. Věd, Živoč. Výr.* **28,** 125-132. [In Czech. English and Russian summaries.] **506**

Gapeworms isolated from young fowls were identified as *Syngamus merulae.* On subsequent examination of blackbirds in the district it was found that 53% of them were affected. *S. merulae* is somewhat smaller than *S. trachea*; the location of the vulva, which in *S. trachea* is in the anterior quarter, is in *S. merulae* in the second quarter of the body. Among other distinguishing points is the absence in female *S. merulae* of the neck-like narrowing of the body behind the head.—E.G.

BRADLEY, R. E. (1955). **Observations on the anthelmintic effect of piperazine citrate in chickens.**—*Vet. Med.* **50,** 444-446. **507**

In field trials in 2 large commercial broiler flocks the drug was added to the drinking water in a conc. of 8,000 and 6,000 mg. per gal. for 60 and 24 hours respectively. The birds were slaughtered 11 weeks and 10 weeks later; worm counts on the intestinal tracts, sampled at random, revealed an average of 0·24 immature *Ascaridia galli* per bird in the one flock and of 0·85 immature and 0·14 mature *A. galli* in the other. The drug was well tolerated.—F.E.W.

KLIMEŠ, B. & ŠVEC, R. (1955). Askaridiosa drůbeže a její therapie. **[Ascaridiasis of fowls and its treatment with petroleum spirit.]**—*Sborn. vys. Šk. zeměděl sk. & les. Fak., Brno.* Ser. B. **3,** (**24**), No. 2, pp. 23. [In Czech. English and Russian summaries.] **508**

The anthelmintic effect of purified petroleum spirit for the control of *Ascaridia galli* and of cestodes was tested in 55 laboratory fowls and 61,790 fowls, turkeys and geese from various poultry farms. The anthelmintic was injected *via* the skin into the crop in doses of 1 ml./2 kg. body wt. It is stated that the anthelmintic was most effective and that there were no harmful after-effects. Egg production, meat quality, and hatchability were unaffected. Removal of worms had a favourable effect on the course of *Pasteurella* infection in some infected flocks. A simple apparatus for mass treatment is described, consisting of a syringe connected by rubber tube to a portable container for the petroleum spirit.—E.G.

ANANTARAMAN, M. & CHANDRASEKHARAN NAIR, K. P. (1955). *Tetrameres* **infection of fowls in India.**—*Zool. Anz.* **154,** 182-193. [In English.] **509**

Spirurid nematodes, tentatively identified as *T. mohtedai,* were found in the proventriculus of four chickens in Madras. Both sexes of the worm are described, and illustrated with drawings. The clinical symptoms, and the results of a P.M. examination of the affected birds, are also described.—D. W. JOLLY.

See also abstr. **490** (aerosols against lungworms); **657** (report, London School of Hyg. & Trop. Med.); **660** (report, Union of S. Africa); **662** (report, India); **665** (report, Bechuanaland); **668** (report, Tanganyika).

SPONTANEOUS AND TRANSMISSIBLE NEOPLASMS AND LEUCAEMIAS [INCLUDING FOWL PARALYSIS]

STÜNZI, H. (1954). Krebs als pathologisches Grundphänomen. **[Cancer as a basic pathological phenomenon.]**—*Vjschr. naturf. Ges., Zurich.* **99,** 155-164. **510**

S. discussed aspects of neoplasia, and in particular of epithelial malignancy. He discussed the interpretation of statistical records of animal neoplasms, the variable sites of origin of the common cancers of different species, and the possible causes of cancer as suggested by observations on animal tumours. He indicated the value of a study of spontaneous animal tumours.—E. COTCHIN.

NUNES PETISCA, J. L. (1954). Eosinofilia local e tumores malignos. **[Local eosinophilia and malignant tumours in animals.]**—*Bol. pecuár.* **22,** No. 3, pp. 61-67. [English and French summaries.] **511**

From a study of 68 malignant tumours in animals and birds the author concluded that local eosinophilia was neither frequent nor very marked in such cases. It occurred to some degree in 14·6% of carcinomas and 11·1% of sarcomas.—I. W. JENNINGS.

KRAHNERT, R. (1955). Pathologisch-anatomische Daten beim tierischen und menschlichen Lungenkrebs. **[Pathological data on cancer of the lungs in animals and human beings]**—*Mh. Tierheilk.* **7,** 155-172. **512**

From a review of the literature [which overlooks the important monograph by Monlux, S.W. (1952): Primary pulmonary neoplasms in domestic animals. Publd. by *The South-Western Veterinarian*] K. compares the situation, origin, type and metastasizing activity of primary pulmonary cancer in animals and in man. As in man, so in animals the right lung appears to be more often affected, but the anterior lobes are less predominantly the site of origin. Pulmonary cancer in animals is mostly of peripheral origin, whereas in man cancer arises chiefly at the hilus. In animals, primary multiplicity is more often seen. No record was found in animals of metastases in two sites not infrequently involved in man—the brain or the adrenal gland. The majority of classifiable lung cancers recorded in animals arise in bronchial glandular epithelium, while other forms predominate in man.

—E. COTCHIN.

Shrigley, E. W. & Clark, W. R. (1955). **Infection of chicks by intranasal route with Rous sarcoma virus.**—*Proc. Soc. exp. Biol., N.Y.* **89,** 433-438. [Authors' summary and conclusions modified.] **513**

It is possible to infect chicks (day-old to 5-week-old) with the Rous sarcoma virus by the intranasal route. By this route, the lungs always became involved if infection took place, but growths were by no means limited to the lungs; widespread involvement of other organs may result. Inhalation of aerosol preparations of the Rous virus did not yield recognizable infection. The organs involved with sarcoma in some instances were those not usually associated with Rous infection when other routes of inoculation are used. No haemorrhagic disease was observed in infected chicks. The possible relationship of the intranasal route to the method of spread of natural Rous virus infection is discussed.

Hashmi, Z. A. & Ahmad, F. G. (1954). **Egg transmission of avian-leucosis-complex.** — *Proc. VIth Pakistan Sci. Congr.* Karachi, 1954. Pt. III. p. 241. [Only abst. given. Abst. from abst.] **514**

The only cases of the avian leucosis complex recorded in West Pakistan occurred in 5 fowls hatched from eggs imported from the U.S.A.—R.M.

See also abst. **447** (growth of mouse encephalomyelitis virus in murine nervous tissue tumours).

NUTRITIONAL AND METABOLIC DISORDERS

—. (1955). **Problems of animal feeding in Europe. Efforts towards self-sufficiency. [Contributors:** Frens, A. M., Crasemann, E., Breirem, K., Richter, K. & Halnan, E. T.]—*FAO agric. Develop. Paper* No. 51, pp. 147. **515**

An account of a meeting held in 1953. Problems in cattle, pig and poultry feeding are included and there is a useful synopsis on the "Role of antibiotics in poultry diets".

—D. Poynter.

Obel, A.-L. (1955). **Studies on grass disease. The morphological picture with special reference to the vegetative nervous system.**—*J. comp. Path.* **65,** 334-346. Author's conclusions slightly modified.] **516**

The author has examined 9 acute and 5 chronic cases of grass sickness in horses in Sweden. The macroscopic changes observed correspond to those found by previous investigators.

In the histological investigation of the vertebral and prevertebral ganglia extensive changes were found in the acute stage. The majority of the ganglion cells were at first chromatolytic and later displayed pyknotic nuclei and vacuolation of the cytoplasm. Similar changes were found in Auerbach's plexus, but only slight changes in Meissner's plexus. In the vagal-glossopharyngeal nuclei in the medulla oblongata no changes were observed, but in one case there was extensive chromatolysis in the hypoglossal nucleus. In the lateral and ventral horns of the spinal cord, the plexus nodosus and the spinal ganglia there was occasional chromatolysis and vacuolation of the nerve cells.

In the chronic cases the sympathetic ganglia contained very few living ganglion cells but numerous vacuolated cell ghosts and chromophilic shrunken cells. Some of the chromatolytic cells had an accumulation of Nissl substance at the nuclear membrane. In otherwise normal ganglion cells there were often coarse, sparsely distributed Nissl bodies. Similar changes were found in Auerbach's plexus. In the spinal cord occasional necrotic nerve cells were seen in the ventral and lateral horns, with similar changes in the plexus nodosus and the spinal ganglia.

The nerve cell damage in the vegetative nervous system in grass disease is compatible with the sympathicotonia observed clinically and explains the poor prognosis of the disease. Although similar changes are caused by neurotropic viruses, *e.g.* poliomyelitis, this does not exclude the possibility of a toxic agent being concerned in the aetiology.

Hall, A. E. (1954). **Fatal hemorrhages in chickens possibly due to rape pasture.**—*Mich. St. Coll. Vet.* **14,** 148-149. **517**

Mortality in a flock of New Hampshire Red fowls from failure of blood coagulation is recorded. The condition appeared soon after the hens were allowed on to a field of rape and deaths stopped four days after removal from it. This was the only known change in husbandry, and no other cause of death could be suggested.—J. A. Nicholson.

POUNDEN, W. D., HIBBS, J. W. & CONRAD, H. R. (1955). **Rumen content in young calves.** *Vet. Med.* **50,** 435-440. **518**

The quantity of liquid which could be withdrawn by stomach tube from the rumen of Jersey calves increased between the 8th and 10th days of life and then gradually decreased. In Holstein calves the increase occurred between the 6th and 9th and again between the 10th and 13th days. Colostrum was present in the rumen of over half the calves during the first day of life and in about a quarter of them during the next 8 days. During the remainder of the first month milk or curd was present in one in 8 of calves receiving both grain and hay and in approx. one in 30 of those restricted to hay alone for dry feed. The incidence of hair and fibre balls in calves between 10 and 21 days was greater than in either younger or older calves. The pH of rumen contents, free from milk, from calves between one and 10 days ranged from 5·97–7·60; the pH of those in which milk or curd was present ranged between 4·43–6·27. Samples from calves between 11 and 25 days on milk alone averaged 6·50, from those of almost similar age receiving grain and hay free choice, the average pH was 6·69. The significance of these data in relation to the health and development of calves is discussed.

—D. POYNTER.

JOUBERT, D. M. (1954). **The influence of high and low nutritional planes on the oestrous cycle and conception rate of heifers.**—*J. agric. Sci.* **45,** 164-172. **519**

Two groups of 14 maiden heifers were reared on a high and on a low plane of nutrition respectively. The average and the modal lengths of dioestrous cycle were practically the same for both groups, the latter being 19 days for both groups with 95·6% of the cycles falling within the normal range of 17–25 days. The initial postpuberal cycles tended to be longer than is generally considered normal. High-plane animals reached puberty during winter and low-plane animals during summer; in the former the cycles were longer in summer than in winter. In low-plane animals a condition of anoestrus persisted throughout the winter and even up to 218 days. Sexual activity was restored only after weight loss had been made good; it fluctuated from zero in mid-winter to a peak in summer; under normal conditions it was greatest in late summer but there was very little variation over the rest of the year. The post-partum oestrus was considerably delayed by lactation in beef animals. In the high-plane animals it occurred after weaning, while the low-plane heifers required nearly a year more and their post-oestrus periods were longer by 20–77 days. The number of services per conception was smaller in the case of the low-plane animals.

—T.E.G.R.

SCHOOP, G., KLETTE, H. & RENNER, G. (1955). Über den Oestrogengehalt verschiedener Futtergräser. **[Oestrogen content of some fodder grasses.]**—*Fortpflanzung.* **5,** 103-108. [English summary.] **520**

When 14 species of pasture and meadow grass, generally cut several weeks before flowering, were examined for their oestrogen content, this was found to vary widely, between 50 and 13,000 mouse units per kg. of dried grass. The oestrogens differed from those of animal origin, being more active upon oral than upon parenteral administration. The implications of possible over- and under-dosage from this source are discussed.

—G. P. MARSHALL.

HEIDA, J. (1955). De opfok van moederloze biggen. **[Rearing of orphan piglets.]** — *Tijdschr. Diergeneesk.* **80,** 616-623. [English, French and German summaries.] **521**

Artificial sow's milk as described by Nelson *et al.* (1952) was given (a) to 1,036 new-born piglets which had received no colostrum and (b) to 1,437 piglets which had ingested colostrum. Mortality in group (a) was 19·4% as compared with 9·7% in group (b). Weaning at 3 days of age was tested experimentally. H. discussed the economic advantages of this system.

—C. A. VAN DORSSEN.

WIDDOWSON, E. M. & MCCANCE, R. A. (1955). **Physiological undernutrition in the newborn guinea-pig.**—*Brit. J. Nutr.* **9,** 316-321. [Authors' summary modified.] **522**

G. pigs increase little in weight during the first week after birth, and appear to pass through a phase of physiological undernutrition. The authors analysed separately the bodies and livers of 23 new-born g. pigs and 16 aged one week. The following changes in the chemical composition of the body took place during the first week of life :— the percentage of water rose, that of fat fell, and the nitrogen/potassium ratio fell.

The changes in the liver during the first week of life differed in some respects from those

of the body, as follows :— there was a large loss of weight, and a decrease in the size of the individual liver cells, together with an increase in their number. The percentage of protein rose, while that of glycogen and fat fell. The sodium/potassium ratio rose.

ELLENBERGER, H. B., NEWLANDER, J. A. & JONES, C. H. (1955). **Effects of feeding different grades of hay and cod-liver oil concentrates to dairy cattle. IV. From birth through one to three lactations.**—*Bull. Vt agric. Exp. Sta.* No. 580, pp. 32. [Authors' conclusions modified.] **523**

All calves, heifers, and cows should be fed at a reasonably liberal level or enough to keep them in thrifty growth though not necessarily at the maximum rate. Even simple concentrate mixtures are satisfactory if adjusted to a proper balance with the roughages used. It is desirable and usually more economical to feed the best quality of roughage that can be provided. Roughage consisting of at least part legumes is preferable though not-essential.

The use of a vitamin A and D supplement such as cod-liver oil concentrate is not necessary especially when early-cut good quality hay is provided. However, if late-cut poor quality hay must be fed to calves and young heifers, such supplementation may be desirable. Cod-liver oil (not concentrated) should not be used.

Dairy animals fed as they should be in other respects do not need calcium or phosphorus supplements added to their rations. Even if no legume roughages are available a simple concentrate mixture and ordinary farm-grown hay and silage provide plenty of Ca and P for normal growth and milk production. It is unnecessary and wasteful to add such items as ground limestone or steamed bone meal to grain rations.

NICHOLS, C. W., JR., LINDSAY, S. & CHAIKOFF, I. L. (1955). **Production of arteriosclerosis in birds by the prolonged feeding of dihydrocholesterol.** — *Proc. Soc. exp. Biol., N.Y.* **89,** 609-613. [Authors' summary modified.] **524**

Twelve cockerels, fed a diet containing 0·5% dihydrocholesterol (DHC) for 6 months, developed severe arteriosclerosis of the thoracic and of the abdominal aorta. The lesions were identical with those induced in birds by the feeding of cholesterol, and appeared to have resulted from deposition of dihydrocholesterol in the vascular wall. Hepatic enlargement in DHC-fed birds was similar to that observed previously in cholesterol-fed birds, and was due in part to storage of dihydrocholesterol in the reticulo-endothelial system.

MCNAUGHT, M. L., GLASCOCK, R. F., BALMAIN, J. H. & FOLLEY, S. J. (1955). **Effects of adrenal corticoids on fatty acid synthesis in mammary gland slices** *in vitro*.—*Biochem. J.* **60,** 102-108. **525**

In lactating mammary gland tissue from rats, fatty acid synthesis from glucose and from acetate is reduced by cortisone (I), corticosterone (II), and deoxycorticosterone (III), but unaffected by cortisol (IV). Insulin is antagonized by I, II, and III, but not by IV. In sheep mammary gland tissue, fatty acid synthesis from acetate is reduced by II, III and IV, but not by I.—F. R. PAULSEN.

KRATZER, F. H., PRAN VOHRA, ATKINSON, R. L. & DAVIS, P. N. (1955). **Treatment of dried whey with various solvents; effects upon the growth of chicks.**—*Proc. Soc. exp. Biol. N.Y.* **89,** 273-274. [Authors' summary slightly modified.] **526**

Dried whey treated with 70% methanol, 70% ethanol, or 70% isopropanol or an equivalent amount of water improved the growth of chicks to which it was fed more than an equivalent amount of untreated dried whey.

LEWIS, D. (1955). **Amino-acid metabolism in the rumen of the sheep.**—*Brit. J. Nutr.* **9,** 215-230. **527**

L. demonstrated the presence of various amino-acids in the ovine rumen. A study was made of the conditions under which ammonia was produced from rumen amino-acids *in vivo* and *in vitro*.—C. C. BANNATYNE.

WRIGHT, E. (1955). **Site of phosphorus absorption in the sheep.** [Correspondence.]—*Nature, Lond.* **176,** 351-352. **528**

Blood analyses following the addition of radioactive phosphorus to different portions of the alimentary tract of anaesthetized sheep, revealed that phosphorus absorption by the rumen, omasum, duodenum, colon and caecum was about equal, but that absorption by the ileum was ten times and by the abomasum 100 times greater than absorption from the other parts of the alimentary tract.

—J. A. NICHOLSON.

TOMLIN, D. H., HENRY, K. M. & KON, S. K. (1955). **The interstitial metabolism of calcium in the bones and teeth of rats.**—*Brit. J. Nutr.* **9,** 144-156. **529**

Autoradiographs of the long bones of three-month-old rats given radio-active calcium reveal that two distinct processes occur, a surface accretion of new bone mineral and an interstitial uptake in the previously deposited mineral.—J. A. NICHOLSON.

HORNER, W. H. (1955). **The determination of calcium in biologic material.**—*J. Lab. clin. Med.* **45,** 951-957. **530**

A new method for the determination of calcium in serum, urine, faeces, etc. is described. It is based on titration with ethylenediamine tetraacetate and ammonium purpurate but avoids the use of a photometric titration. It is claimed to be simple, rapid and accurate.—J. A. NICHOLSON.

BLAXTER, K. L. & ROOK, J. A. F. (1955). **Energy and carbohydrate metabolism in magnesium-deficient calves.**—*Brit. J. Nutr.* **9,** 121-132. **531**

Four calves kept on a magnesium-free diet showed an increase in heat production and a fall in energy retention corresponding with the fall in blood magnesium. In the tetanic stage body temp. was elevated in one case to 105·4°F. Observations on two thiamine deficient calves showed that in them there was a much greater increase in the pyruvic and lactic acid blood levels as compared to the magnesium deficient calves. It is concluded that in magnesium deficiency the changes are due to the increased muscular work of tetany and not to any effect on the enzyme systems concerned in carbohydrate metabolism.

—J. A. NICHOLSON.

CARR, C. W. (1955). **Competitive binding of calcium and magnesium with serum albumin.** —*Proc. Soc. exp. Biol., N.Y.* **89,** 546-549. [Author's summary slightly modified.] **532**

An account of a study of the binding of calcium and magnesium to serum albumin when both are present at the same time. It is shown that the ratio of the concentrations of bound calcium and bound magnesium is equal to the ratio of the concentrations of the ionized calcium and ionized magnesium.

STEWART, J., MITCHELL, I. W. & YOUNG, F. J. (1955). **Cobalt therapy in farm practice with special reference to hill farms.** — *Vet. Rec.* **67,** 755-757. [Authors' summary slightly modified.] **533**

Field experiments carried out in two successive years showed that monthly dosing with 250 mg. cobalt of lambs grazing cobalt-deficient pasture was a useful method of preventing cobalt deficiency.

MCDONALD, F. F., DUNLOP, D. & BATES, C. M. (1955). **An effective treatment for anaemia of piglets.**—*Brit. vet. J.* **111,** 403-407. **534**

An iron dextran compound injected i/m proved of value in the control of anaemia of young pigs. Absorption took place satisfactorily and no staining of the muscle was found after 30 days.—D. LUKE.

KRÜGER, W. & NEUHOFF, H. (1955). Über die Wirkung kleiner Mangandosen auf den Blutstatus und das Wachstum junger Tiere. **[Action of small doses of manganese on the blood picture and growth of young rabbits.]** —*Kieler Milchwirtschaft. ForschBer.* **7,** 77-88. [English, French & Italian summaries.] **535**

In experiments in which rabbits were given manganese lactate intravenously it was found that as little as 0·2 mg. per kg. per week was sufficient to retard growth and larger doses caused definite symptoms of poisoning. It is concluded that the manganese content should be given careful consideration when adding mineral mixtures to diets.

—J. A. NICHOLSON.

STRAUCH, D. & BRÜNNER, F. (1955). Weitere Untersuchungen zur Frage der Mitwirkung des Mineralstoffmangels bei Störungen der Fruchtbarkeit der Rinder. **[Mineral deficiencies and sterility in cattle.]**—*Berl. Münch. tierärztl. Wschr.* **68,** 160-163. [English summary.] **536**

When soil and hay samples were chemically examined on 57 farms where cattle had reproductive disorders, a direct relationship was established between the phosphoric acid content of the fodder and the calving interval and insemination index.

Vestibulitis and vaginitis were cured in 12 out of 14 cases by feeding a calcium supplement containing 2 parts of carbonate and one part of phosphate, and in 9 out of 13 cases by trace elements (manganese, cobalt, copper, iodine and zinc). Sterility was relieved in all of 5 cows by the former method, and in 5 out of 6 cows by the latter. The part played by

mineral deficiencies in the causation of disturbances in fertility was emphasized.

—G. P. MARSHALL.

LETTOW, E. (1955). Osteodystrophie beim Hund. Ein Beitrag zur Kasuistik. **[Osteodystrophy in a dog.]**—*Berl. Münch. tierärztl. Wschr.* **68,** 49-52. [English summary.] **537**

Severe hypocalcaemia and marked dystrophic changes were found in the upper and lower jaws of a young dog. Following six months' treatment with "tachysterol" the blood Ca and P levels returned to normal and the bone changes were arrested.

—G. P. MARSHALL.

MOORE, T. & MITCHELL, R. L. (1955). **Dental depigmentation and lowered content of iron in the incisor teeth of rats deficient in vitamin A or E.**—*Brit. J. Nutr.* **9,** 174-180. **538**

The relationships of vitamins A and E to the iron content of the incisor teeth of rats were studied. A fall in iron content was noted in vitamin E and A deficiencies. Piebald rats appeared to be more resistant than albinos to the fall seen during a vitamin E deficiency. No difference, however, was noted during a vitamin A deficiency.—J. A. NICHOLSON.

FROST, D. V. & SPRUTH, H. C. (1955). **Control of hemorrhagic condition in chickens with menadione sodium bisulfite.** — *Poult. Sci.* **34,** 56-64. **539**

In chicks fed a diet low in vitamin K, neither the addition of 0·05% arsanilic acid nor 0·03% sulphaquinoxaline caused an increase in the clotting time of the blood. The addition of 0·1% sulphaquinoxaline caused an increase in clotting time, which was overcome by adding to the food menadione sodium bisulphite at a conc. of 90–180 mg. per ton. Menadione itself was considerably less effective than menadione sodium bisulphite.—R.M.

FROST, D. V., PERDUE, H. S. & SPRUTH, H. C. (1955). **Hemorrhagic syndrome in poultry.** —*Fed. Proc.* **14,** 434. [Only abst. given. Abst. from abst.] **540**

Menadione sodium bisulphite, administered in the drinking water at 10–100 mg./gal., was an effective treatment in field outbreaks of the haemorrhagic syndrome of fowls. As little as 0·6 g. of the drug per ton of food was adequate to protect chicks up to 4 weeks of age on a diet low in vitamin K and containing 0·1% sulphaquinoxaline. Under the same conditions, menadione itself proved inadequate at concentrations up to 4 g. per ton. Whereas the effectiveness of menadione appears to be related to the fat content of the diet, that of menadione sodium bisulphite is independent of the fat content.

JACKSON, J. T., MANGAN, G. F., MACHLIN, L. J. & DENTON, C. A. (1955). **Absorption of vitamin B_{12} from the cecum of the hen.**—*Proc. Soc. exp. Biol., N.Y.* **89,** 225-227. [Abst. from authors' summary.] **541**

Removal of the caeca of hens fed a diet deficient in vitamin B_{12} did not shorten the time required to deplete the egg of the vitamin. The authors concluded that the hen on such a deficient diet did not derive any appreciable benefit from vitamin B_{12} in the caeca.

WRIGHT, E. & ANDREWS, E. D. (1955). **Availability of iodate iodine to sheep.**—*N.Z. J. Sci. Tech.* Sect. A. **37,** 83-87. [Authors' summary copied *verbatim.*] **542**

Experiments with radioactive iodine (^{131}I) given orally to six sheep as potassium iodate and as potassium iodide, showed that for four of the animals the amounts of iodine accumulated by thyroid glands from iodate and from iodide were comparable. In the remaining two animals maximal uptake from iodate was much lower than that from iodide. Nevertheless, in all six sheep the amounts of iodate iodine accumulated by the thyroid glands were sufficient to justify the conclusion that potassium iodate is a suitable source of iodine for sheep.

FREUDIGER, U. & KÖHLER, H. (1955). Klinische und pathologisch-histologische Untersuchungen bei einem Fall von Diabetes mellitus des Hundes. **[Clinical and pathological study of diabetes mellitus in a dog.]**—*Schweiz. Arch. Tierheilk.* **97,** 188-198. [English, French and Italian summaries.] **543**

A case of diabetes mellitus in a ten-year-old dog is described. There was a moderately high blood sugar level with increased blood urea and albuminuria. The animal was destroyed. The main P.M. findings were fatty degeneration of the liver, glomerulosclerosis and an increase of α- cells with degeneration of β- cells in the pancreas.—J. A. NICHOLSON.

MARR, A., MOODIE, E. W. & ROBERTSON, A. (1955). **Some biochemical and clinical aspects of milk fever.**—*J. comp. Path.* **65,** 347-365. [Authors' conclusions modified.] **544**

The levels of serum calcium, serum magnesium and plasma inorganic, total acid soluble, lipid and total phosphates in clinical

cases of milk fever in cows and the effect of calcium therapy and udder inflation on these blood constituents were studied. The data were analysed according to the nature of the response to treatment. Serum calcium, plasma inorganic, total acid soluble and total phosphates were significantly lower than in normal parturient cows of an age susceptible to milk fever. Serum magnesium and plasma lipid phosphate were not significantly altered.

The time in relation to calving and the number of the calving at which milk fever occurred in 93 cases of milk fever is presented.

There was a significant correlation between the severity of the clinical signs and the extent of the depression in serum calcium, plasma inorganic, total acid soluble and total phosphates, but no correlation in the case of serum magnesium and plasma lipid phosphate.

Cases were classified according to satisfactory and unsatisfactory response to treatment. Cases in the "satisfactory response" group occurred at an av. of 23 hours after calving and cases in the "unsatisfactory response" group at an av. of 6½ hours after calving, the difference being highly significant.

There was no correlation between the initial blood levels of the various constituents, or the nature of the clin. signs and the nature of the response to treatment.

Comparisons between the two groups in the period between treatment by i/v inj. of calcium borogluconate and 10 hours after treatment showed that the behaviour of serum calcium was similar while that of the plasma phosphates differed in the two groups. In the "satisfactory response" group there was a sustained rise in the plasma phosphates, but only a slight rise immediately after injection in the "unsatisfactory response" group, followed either by maintenance of this level or by a decline until the end of the 10-hour period.

Udder inflation resulted in a sustained rise in all the blood constituents.

The significance of these findings is discussed.

SCHOETTLE, C. E., REBER, E. F., SAMPSON, J. & GARRIGUS, U. S. (1955). **Piromen as a treatment for ketosis in pregnant ewes.**—*N. Amer. Vet.* **36,** 725-728. **545**

"Piromen", a non-protein *Pseudomonas* polysaccharide which acts upon the adrenal cortex, was found to be ineffective in the treatment of artificially induced starvation ketosis in 10 pregnant ewes.

—C. C. BANNATYNE.

I. GESSERT, R. A., SHAW, J. C. & CHUNG, A. C. (1955). **Studies on ketosis in dairy cattle. XVII. The value of hydrocortisone therapy**—*J. Amer. vet. med. Ass.* **127,** 215-218. [Authors' summary slightly modified.] **546**

II. SPEICHER, J. A., SHAW, J. C., CHUNG, A. C. & GESSERT, R. A. (1955). **Studies on ketosis in dairy cattle. XVIII. The value of 11-ketoprogesterone as a therapeutic agent.**—*Ibid.* 218-219. [Authors' summary slightly modified.] **547**

III. SHAW, J. C., CHUNG, A. C., OZANIAN, C. H., CHRISTIANSEN, F. J. & RIGHETTI, A. T. (1955). **Studies on ketosis in dairy cattle. XIX. Glucocorticoid and ACTH therapy in the Los Angeles area.**—*Ibid.* 324-328. [Abst. from authors' summary.] **548**

I.—Hydrocortisone was more effective than hydrocortisone acetate for the treatment of bovine ketosis and appreciably more potent than cortisone acetate. A combination of hydrocortisone and hydrocortisone acetate appeared to be as effective as, and perhaps more effective than, hydrocortisone alone.

II.—Of 28 cows with ketosis treated with 1 to 5 g. of 11-ketoprogesterone, 13 recovered without additional treatment. In most cases, the blood glucose and clinical response was less than that usually obtained following similar or lesser dosages of cortisone acetate.

III.—Hydrocortisone and combined treatment with hydrocortisone and hydrocortisone acetate proved effective in ketosis in cattle when adequate dosage was given. Almost twice the dosage of glycocorticoids and adrenocorticotrophic hormone (ACTH) which had been found adequate in previous studies in Maryland [*V.B.* **22,** 2592; **23,** 2652 and I *supra*] was required to obtain consistent results. Refractory cases recovered rapidly following injection of ample dosage of glucocorticoids or ACTH over periods of 2–4 days. The incidence of ketosis was highest in the cows shipped into the area immediately before parturition.

See also abst. **669** (report, FAO).

DISEASES, GENERAL

ANON. (1955). **Diseases of farm livestock. Section II. Diseases of sheep.** pp. 122. London: British Veterinary Association Publ. No. 6. 3rd Edit. **549**

A concise account of the main diseases of sheep in Great Britain with emphasis on prophylaxis and control. At the outset the relationship between management practices and disease is examined. The diseases are classified as bacterial, viral and rickettsial, parasitic, metabolic and of unknown aetiology. A brief section on toxicology deals with rhododendron and yew, common therapeutic agents, hydrocyanic acid, and several inorganic poisons. There are brief notes on 12 important diseases not known in Gt. Britain.

—C. C. BANNATYNE.

ANON. (1954). **Investigations 1953.**—*Bull. Dep. Agric., Jamaica* No. 53. (New series) pp. 163. [Veterinary Science pp. 145-157.] **550**

A survey of diseases transmissible from animals to man in the West Indies, with special reference to Jamaica, was completed and has been published [*V.B.* **23,** 2792 & **25,** 2971].

Although fungus infections are common throughout the Caribbean area in man and animals, lack of evidence concerning the origin of many of the human infections makes it impossible to give a list of all inter-communicable fungi.

Tests were made in the treatment of anaplasmosis with the experimental drug PAA 701 (camoform) and with terramycin.

A bacterial survey was carried out on milk and an effort made to incriminate milk as a source of rheumatism in man, but nothing was proven.

The aetiology of "farcy" in equines was investigated; it was found to be due to *Corynebacterium ovis*. *Histoplasma farciminosum* was not detected and it is now considered that this organism does not occur in the island. The report is amplified by several statistical tables.—D. S. RABAGLIATI.

I. BELL, W. N., ARCHER, R. K. & TOMLIN, S. C. (1955). **Coagulation mechanism of the horse.** [Correspondence.]—*Nature, Lond.* **175,** 596-597. **551**

II. BELL, W. N., TOMLIN, S. C. & ARCHER, R. K. (1955). **The coagulation mechanism of the blood of the horse with particular reference to its "haemophilioid" status.**—*J. comp. Path.* **65,** 255-261. [Authors' conclusions modified.] **552**

I & II. Twelve horses, free from apparent haematological disorders, were studied by means of newer coagulation tests. In comparison with known human values, the most significant findings were a prolonged clotting time, poor clot retraction despite a relatively normal platelet count, and a prolonged one-stage prothrombin time.

By means of the thromboplastin generation test, it was found that the prolonged clotting time was due to a deficiency of anti-haemophilic globulin. This defect was present in both sexes and was fully corrected by normal human plasma. This finding is of interest since no other animal is known to exhibit this defect and since it offers a useful tool for those interested in investigating haemophilia in man. [In this article spontaneous haemorrhage in horses is said to be rare. No reference is made to the epistaxis which not uncommonly occurs in racehorses. This article may be of interest to those interested in the subject of "nose-bleeding" in Thoroughbreds during races—Ed. *V.B.*]

NAKAMURA, R., SONODA, M., TOO, K., SATOH, H., YAMASHITA, J., ABE, H., TAKAMIYA, T., KUROSAKI, T. & SHIBATA, R. (1954). **Studies on "Kasen" of horses in Hokkaido. I. Results obtained in 1953.**—*Jap. J. vet. Res.* **2,** 109-116 [In English.] **553**

"Kasen", a skin disease of horses, appears in summer and disappears spontaneously in the cooler weather. It is characterized by marked pruritus causing severe dermatitis and leading to marked thickening of the skin. The regions of the withers and croup are most commonly affected. The aetiology of the condition is obscure.—T.E.G.R.

GEORGIEV, R. (1954). **[Role of saponins in chronic bovine haematuria.]**—*Izv. Inst. eksp. vet. Med., Sofia.* **3,** pp. 61-68. [In Bulgarian. English and Russian summaries. Abst. from English summary.] **554**

G. considered that saponins precipitated and aggravated haematuria but were not the direct cause of the condition.—T.E.G.R.

SCHIPPER, I. A., EVELETH, D. F., SHUMARD, R. F. & RICHARDS, S. H. (1955). **Mucosal disease of cattle.**—*Vet. Med.* **50,** 431-434 & 450. [Authors' conclusions modified.] **555**

The condition described by Ramsey & Chivers [*V.B.* **24,** 3272] as "mucosal disease" has points of resemblance with malignant catarrh, virus diarrhoea, rhinotracheitis and

rinderpest. Little is known of its aetiology or of the mode of transmission. Frequently it has been misdiagnosed as coccidiosis, avitaminosis, infectious keratitis, haemorrhagic septicaemia, and rabies. Because of the increased incidence or recognition of mucosal disease as a distinct entity in cattle in the U.S.A. and the great similarity of the symptoms and lesions to those of rinderpest, veterinarians are urged to be alert to the threat of a potentially serious disease.

HIRSCH, E. A. (1955). **Osteohaemochromotosis in a bullock.**—*Irish vet. J.* **9,** 104-105. **556**

Osteohaemochromatosis was diagnosed at slaughter in an apparently normal bullock: the condition is discussed.—JOHN SEAMER.

BLOOD, D. C. & HUTCHINS, D. R. (1955). **Traumatic splenitis and hepatitis of cattle.**—*Aust. vet. J.* **31,** 233-237. [Abst. from authors' summary.] **557**

An account of 6 cases of traumatic splenitis-hepatitis with details of the clinical symptoms and the P.M. findings. Treatment with sulphadimidine appeared to have a beneficial effect.

LOMBARDO, N. (1955). Rilievi radiografici sulla mammella della capra. **[Radiological study of the udder of the goat.]**—*Clin. vet., Milano.* **78,** 104-110. [English summary.] **558**

Radiography of the goat's udder as an aid to diagnosis was investigated. Comparative studies of the gland were made before and after stripping. Contrast was obtained by injection of a watery suspension of barium sulphate, by inflation, or by a combination of the two. Inflation gave good results.

—T.E.G.R.

CASAROSA, L. (1954). Emorragie surrenaliche in neonati nel quadro della c. d. sindrome generale dell'adattamento e delle malattie dell'adattamento. **[Adrenal gland haemorrhages in new-born goats and foals as part of the general syndrome of adaptation.]**—*Ann. Fac. Med. vet. Pisa.* **7,** pp. 1-11. [English and French summaries.] **559**

The adrenal glands of an unstated number of new-born kids and foals, which had died 1–2 days after difficult parturition, contained haemorrhages. C. suggested that these lesions were evidence of the stress syndrome.—R.M.

SCHOFIELD, F. W. & ROBERTSON, A. (1955). **Oedema disease (entero-toxaemia) in swine—I. experiments designed to reproduce the disease.**—*Canad. J. comp. Med.* **19,** 240-242. **560**

SCHOFIELD, F. W. & DAVIS, D. (1955). **Oedema disease (entero-toxaemia) in swine. II. Experiments conducted in a susceptible herd.**—*Ibid.* 242-245. **561**

SCHOFIELD, F. W. & NIELSEN, S. W. (1955). **Oedema disease (entero-toxaemia) in swine. III. The use of thiamine in its prevention and cure.**—*Ibid.* 245-250. **562**

I. An account of six unsuccessful attempts to set up oedema disease in young pigs, by (a) feeding them ingesta from pigs that had died from the disease, (b) drastic changes in diet, (c) attempts to cause a food allergy to pig starter rations, (d) inoculation of filtrates from stomach contents, (e) inoculation of neurotoxins from unidentified intestinal anaerobes, and (f) transportation.

II. In a herd with a history of oedema disease, the following measures were ineffective:— treatment of affected pigs with streptomycin; the use of a killed culture vaccine prepared from haemolytic *Bact. coli;* improvement of the diet. The disease could not be transmitted by contact. The authors suggested that toxogenic organisms may occur in the intestines of affected animals.

III. Treatment with thiamine hydrochloride had neither prophylactic nor curative value in oedema disease.—A. GREIG.

VESSELINOVITCH, S. D. (1955). **Electrophoretic studies of oedema disease in swine.**—*Brit. vet. J.* **111,** 398-403. **563**

Serum protein values were measured in 18 healthy pigs and in 13 pigs with oedema disease. The oedema group was sub-divided into Group 1 of 7 pigs having clinically observable oedema, and Group 2 of 6 pigs without oedema. (The criterion of diagnosis of oedema disease in this group is not stated). There was a decrease in albumin in all cases, particularly in group 1. This decrease was accompanied by an increase in α- and γ-globulin in group 1 and of γ-globulin in group 2.—D. LUKE.

JOHNSON, T. K., BONE, J. F. & OLDFIELD, J. E. (1955). **Atrophic rhinitis in swine. I. Methods of control in a purebred herd.**—*N. Amer. Vet.* **36,** 191-195. **564**

Various methods of obtaining rhinitis-free pigs from infected herds were tried. Those based on recognition and segregation of clinically affected animals or natural suckling

for the first 2 to 5 days of life failed completely to eradicate infection, while those based on rigorous segregation of piglets from their dam at birth failed because of inability to rear the piglets on an artificial diet without colostrum. A compromise system was evolved, under which piglets were removed from the sow at birth but allowed access to her udder, only at intervals, for the first 24 hours and were thereafter reared in isolation on an artificial diet. Of 33 so far reared by this technique, 17 have been slaughtered and found to be free from rhinitis.—J. T. Done.

Done, J. T. (1955). **An "inclusion-body" rhinitis of pigs. (Preliminary report.)**—*Vet. Rec.* **67,** 525-527. [Author's summary copied *verbatim*.] **565**

The clinical and pathological features of a type of rhinitis occurring in piglets in the first few weeks of life are described. Pathologically the disease is characterised by the presence of large granular basophile inclusions and smaller acidophile inclusions in the nuclei of the mixed glands of the nasal mucosa. The possible aetiology of this condition and its relationship to atrophic rhinitis are discussed.

Larsen, N. B., Møller, T. & Thordal-Christensen, A. (1955). **Cases of meningoencephalitis eosinophilica in pigs.** — *Nord. VetMed.* **7,** 653-659. [In English. Danish and German summaries. Authors' summary modified.] **566**

In two of four pigs, which died after an acute illness with pronounced nervous symptoms (depression alternating with excitation), marked changes were observed in the c.n.s. with hyperaemia, haemorrhage and oedema, as well as proliferative changes of the endothelial cells of the blood vessels, and perivascular cell infiltration containing numerous eosinophilic granulocytes (Meningoencephalitis eosinophilica).

In two pigs which survived the disease and were slaughtered after recovery, perivascular infiltrations of round-cells, neurone atrophy and microglial proliferations were observed in the corpus striatum of the brain.

The cause was not found. The history and clin. symptoms indicated poisoning, possibly due to sodium chloride. The changes in the c.n.s. rather indicated that the disease was of an allergic nature.

Jordan, F. T. W. (1955). **Rupture of the gastrocnemius tendon in the fowl.**—*Vet. Rec.* **67,** 548-551. [Author's summary modified.] **567**

Rupture of the gastrocnemius tendon of one or both legs occurred in 24 of a group of 261 Light Sussex hens, 5–6 months old, which had been selected for early maturity. An additional 57 cases were seen on two other farms among related Light Sussex hens. J. suggested that an inherited predisposition, together with early maturity and the use of straw yard or deep-litter systems of management, may be the aetiological factors concerned.

Hartman, J. L. & Trum, B. F. (1954). **An investigation of suspected radiation damage to live stock.**—*Vet. Ext. Quart. Univ. Pa.* No. 134. pp. 87-91. **568**

Heavy mortality and illness of unknown origin in a herd of range cattle in Las Vegas, Nevada, 30 miles north of the atom bomb site were, on investigation, found to be due to radiation. Symptoms included cachexia, unthriftiness, emaciation and incoordination of movement; a few older calves had keratitis and some were blind from corneal opacity. Acute vitamin A deficiency was demonstrated by liver assay in some cases. Radiometric analysis revealed radioactivity on the skin and in the carcasses of some dead animals and none in others. Carcasses of calves were not radioactive. The possible dosage received by the cattle was discussed. Horses running wild on the range had evidently strayed into a heavy "fall out" area because they too had numerous "beta burns" (lesions produced by beta radiations—heat is not involved), but were otherwise normal.—T.E.G.R.

Rust, J. H., Trum, B. F., Wilding, J. L. & Lane, J. J. (1954). **Hematological response of the burro (*Equus asinus asinus*) to total body tantalum-182 irradiation.**—*Acta haemat.* **12,** 327-335. [In English. French and German summaries. Authors' summary modified.] **569**

The r.b.c. count, haematocrit value and haemaglobin content of the blood were reduced in donkeys following total body exposure to gamma radiation. Increased erythropoiesis took place in the bone marrow from the 10th to the 20th days after irradiation, and was soon reflected in an increase of the r.b.c. count. The number of reticulocytes in the bone marrow increased from the 5th to 10th week after irradiation. There was a reduction in the number of lymphocytes in the blood during the first two weeks, and in neutrophile leucocytes. Cases in which the fall in the neutrophile count continued after 3 weeks were usually fatal.

TULLIS, J. L., LAMSON, B. G. & MADDEN, S. C. (1955). **Pathology of swine exposed to total body gamma radiation from an atomic bomb source.**—*Amer. J. Path.* **31,** 41-71. **570**

The clin. effects on pigs of total body gamma radiation (estimated at 700r) from an atomic bomb were irritability (decreasing to a state of extreme lethargy), inappetence, thirst, diarrhoea and pyrexia. Death occurred on the 7th day; rigor mortis set in 2–3 hours after death. P.M. findings included emaciation, dehydration, marked reduction in size of the thymus gland and widespread haemorrhages affecting the tonsils, lymph nodes, joint cavities, subserous and subperitoneal cavities, heart, kidneys and mucosa of the alimentary tract. The heart was dilated, soft, flabby and of a pale turbid colour; the liver was friable, congested and "yellowish red-brown" in colour. The bone marrow was dry, light-red and scanty. Ulcers were observed in various parts of the alimentary tract. The blood clotted rapidly. Bacterial invasion and growth were prominent features. The histological changes associated with the macroscopic lesions were discussed.—T.E.G.R.

I. SHERLOCK, S. (1955). **Portal systemic encephalopathy in liver disease.**—*Proc. R. Soc. Med.* **48,** 479-481. **571**

II. SUMMERSKILL, W. H. J. (1955). **Blood ammonium levels in liver disease.**—*Ibid.* 482-484. **572**

I. A discussion on the nervous symptoms in liver disease (mainly portal cirrhosis and acute virus hepatitis); its pathogenesis and treatment. [Drowsiness and excitement have been observed in cirrhosis of the liver in horses.]

II. Blood ammonium—the suggested cause of coma in liver disease—was discussed. It was considered that, in liver disease, the blood ammonium levels depend on liver function and on the portal systemic shunting of blood. Ammonium from the portal vein may reach the systemic venous circulation by passing through a diseased liver or through portal-systemic collateral channels.—T.E.G.R.

ARNOTT, W. M. (1955). **Order and disorder in pulmonary function.**—*Brit. med. J.* July 30th, 279-286 & Aug. 6th, 342-348. **573**

A review of pulmonary function in man in health and disease.

It is emphasized that alveolar ventilation and exchange across the alveolo-capillary membrane is explicable on the basis of simple physical laws. The diffusion capacity of oxygen is a function of the area of the blood-gas interface and the thickness of the intervening membrane. It was discovered that this diffusion capacity decreased with age; this was regarded as another example of loss of adaptability consequent upon the sclerosing processes of senescence.

The major physiological influences affecting the partial pressures of O_2 and CO_2 in gas and blood were described as ventilation, diffusion, circulation and distribution, and the general principles of experiments investigating these factors were discussed. In the application of these findings to disease, "pulmonary fibrosis" was the term given to changes producing an increased alveolar diffusion gradient for O_2 due principally to increase in diffusion distance and a reduction of the blood-gas interface. This may result from a variety of processes which are essentially chronic in nature.

The second paper is confined to the role of the circulation and the adaptation of Poiseuille's equation as an expression of the important factors governing pulmonary flow. The evidence for presence and function of arterio-venous shunts in the diseased lung is mentioned: then control of the pulmonary circulation is considered under three groups of mechanisms (a) neural, (b) effect of circulating substances and (c) influence of alveolar gas tension whereby anoxia or an increase in the tension of inspired CO_2 produces an increase of pulmonary arterial pressure.

—W. E. PARISH.

GRÖNTOFT, O. (1954). **Intracranial haemorrhage and blood-brain barrier problems in the new-born. A pathologico-anatomical and experimental investigation.**—*Acta path. microbiol. scand.* Suppl. 100, pp. 109. [In English.] **574**

G. classified 120 fatal cases of intracranial haemorrhage in babies which were either born dead or died during or within 15 days of birth. Over 50% were related to laceration of the tentorium cerebelli. The blood-brain barrier (b.b.b.) was studied with trypanblue and reasons advanced for locating it in the capillary endothelium. No close relationship was found between intracranial haemorrhage and damage to the b.b.b. caused by asphyxia.

—JOHN SEAMER.

See also absts. 669 (report, FAO); 671 (Hutyra & Marek's Special Pathology and Therapy); 672 (book, pig diseases).

POISONS AND POISONING

GEBAUER, H. (1955). Gefahr der Arsenvergiftung in unseren Tierbeständen. **[Risk of arsenical poisoning of livestock from the spraying of crops.]**—*Mh. VetMed.* **10,** 391-393. **575**

Poisoning by arsenic was suspected in cattle affected with severe gastro-enteritis, as potato-crops in the area had recently been sprayed with arsenical compounds. Examination of cattle-fodder from affected farms revealed that it contained from 0·02 to 0·4 mg. of arsenic per 100 g. of fodder, and that clover, lucerne and straw tended to contain a greater amount than other materials.

Arsenic was found not to be the cause of the gastro-enteritis, but G. emphasized the dangers that lie in repeated spraying of crops with preparations containing arsenic.—M.G.G.

WALKER, G. W. & MILNE, A. H. (1955). **Fluorosis in cattle in the Northern Province of Tanganyika.**—*E. Afr. agric. J.* **21,** 2-5. **576**

Cattle watered from streams rising in the Mount Meru area were examined. Symptoms of fluorosis ranged from very mild lesions of the teeth in cattle in the Oldonyu Sambu area to lameness, poor condition, extensive lesions of the teeth, brittleness and lightness of the bones in those in the Engare Nanyuki area. The critical fluorine intake for cattle appears to lie between 18·6 and 25·0 p.p.m.—M.G.G.

STAPLES, E. L. J. (1955). **Experimental lead-poisoning in dogs.**—*N.Z. vet. J.* **3,** 39-46. **577**

Lead-poisoning was induced in 9 dogs by administering varying doses of white lead (containing 79% Pb). Three dogs were poisoned with single large doses, and the other 6 with small daily doses. Symptoms were not constant, but listlessness and anorexia with marked emaciation were usually noted. Muscular tremors, frothing at the mouth, vomiting and continuous barking generally preceded the onset of convulsions. Histopathological examination revealed lesions in the cerebellum, liver and kidney.—M.G.G.

ELDER, W. H. (1954). **The effect of lead poisoning on the fertility and fecundity of domestic mallard ducks.**—*J. Wildlife Mgmt.* **18,** 315-323. **578**

In an attempt to assess the effect on fertility following the consumption of lead shot by ducks, experimental birds were given lead shot in gelatin capsules, sufficient to produce signs of lead poisoning. It could not be shown that ingested lead shot decreases fertility or increases early embryonic mortality.

—J. A. NICHOLSON.

HARRISON, D. L. & STAPLES, E. L. J. (1955). **Zinc chromate poisoning in calves.** — *N.Z. vet. J.* **3,** 63-73. [Authors' summary modified.] **579**

An account of toxicity tests, following losses in dairy cattle on premises where zinc chromate had been used in connexion with electric power installation. Orally administered zinc chromate caused both acute and chronic poisoning in young calves. The pigment was essentially a corrosive poison. In all fatal cases there was typical diarrhoea, the faeces being yellowish-green in colour. In calves which died from either acute or chronic poisoning, high chromium levels were found in the blood and liver. Minimum tissue levels of chromium that would confirm chromate poisoning are 30 p.p.m. in the liver and 4 μg./ml. in whole blood. There was a marked rise in liver zinc levels in chronic, but not in acute poisoning.

FORGACS, J. & CARLL, W. T. (1955). **Preliminary mycotoxic studies on hemorrhagic disease in poultry.**—*Vet. Med.* **50,** 172. **580**

Selected strains of species of *Aspergillus, Penicillium* and *Alternaria,* isolated from samples of feed associated with outbreaks of a haemorrhagic disease in poultry, were grown on grain which was then fed to day-old chicks. Subsequently the chicks developed symptoms comparable to those in the field cases, and had haemorrhages in the muscles, lungs, heart, gastro-intestinal tract and liver. Twenty chicks, 6 weeks old, were given feed on which the species of *Alternaria* had been cultured alone; they died and P.M. examination revealed similar haemorrhages.

—P. K. C. AUSTWICK.

FORSYTH, A. A. (1954). **British poisonous plants.**—*Bull. Minist. Agric., Lond.* No. 161. pp. 116. London: H.M. Stat. Off. 6s. 6d. **581**

This book is written primarily for the stock owner and country reader in as simple language as possible and a glossary is appended of the medical, veterinary and botanical technical terms used. The subject matter is divided into the following sections:—about poisonous plants; the plant poisons; about plant poisoning, about poisoned animals; poisonous plants, dealing with 25 plant families of dicotyledons and nine plant

families of monocotyledons; moulds and ergot; the larger fungi; suspected plants; and plants which affect milk. There are many references to relevant literature and excellent photographs, four in colour and 16 others throughout the text, and an index. This bulletin supersedes Bulletin No. 75, *Poisonous Plants on the Farm* (last published in 1938).
—E. Marsh Jones.

France, W. H. (1955). **Bracken poisoning in cattle.**—*Vet. Rec.* **67,** 802-804. **582**

F. examined the value of blood sampling for the diagnosis of bracken poisoning in the field. He examined stained smears from 259 blood samples withdrawn at regular intervals from 52 cattle grazing where bracken grew. Of 25 animals which had thrombocytopenia, 8 had typical bracken poisoning. In no case did symptoms occur before thrombocytopenia was demonstrable. No controls were used. He reported on treatment with nicotinamide.
—F.E.W.

O'Moore, L. B. (1955). ***Arum maculatum* poisoning in cattle.** — *Irish vet. J.* **9,** 146-147. **583**

In each of 6 outbreaks investigated, cattle had been confined to sparse or unpalatable grazings. Symptoms were not constant. Generally, there was salivation, oedema of the neck, incoordination and convulsions, often followed by collapse and death. P.M. lesions included inflammation of the mouth, abomasum, intestines and gall bladder.—M.G.G.

Brandt, A. & Martinius, J. (1955). Über Dinitrokresolvergiftungen bei Schweinen. **[Dinitrocresol poisoning in pigs.]** — *Mh. VetMed.* **10,** 289-294. **584**

Four cases were described. The usual cause was contaminated pasture and crops.
—M.G.G.

Hayes, W. J., Jr. & Durham, W. (1954). **Studies of organic phosphorus insecticide poisoning.**—*Proc. VIth Congr. int. Path. comp.* Madrid, 1952. **2,** pp. 231-240. [In English.] **585**

The authors assessed the toxic effects of parathion by measuring its inhibition of cholinesterase in the blood plasma and r.b.c. of 4 dogs fed 2 or 4 mg./kg. body wt. of the insecticide daily for 2–3 weeks. There was no evidence that the dogs developed a tolerance to parathion.—R.M.

Bell, R. R., Price, M. A. & Turk, R. D. (1955). **Toxicity of malathon and chlorthion to dogs and cats.**—*J. Amer. vet. med. Ass.* **126,** 302-303. **586**

In these toxicity trials of two parasiticides small numbers of dogs were given "malathon" in single oral doses ranging from 0·5 to 3·5 g./kg. or were dipped 4 times at 4-day intervals in a 2% solution. Apart from vomiting 35 min. after oral administration, none showed any apparent signs of toxicity.

Repeated dippings, at 4-day intervals in 0·5–2·0% solns. of "chlorthion" proved considerably more toxic to dogs and this compound was therefore regarded as unsafe to apply to the animal body, but a 0·25% soln. produced no signs of toxicity in either dogs or cats, under these conditions.

None of the animals in these trials showed any P.M. signs of toxicity.—G. P. Marshall.

Gowdey, C. W. & Stavraky, G. W. (1955). **A study of the autonomic manifestations seen in acute aldrin and dieldrin poisoning.**—*Canad. J. Biochem. Physiol.* **33,** 272-282. **587**

According to the authors the action of aldrin and dieldrin on the parasympathetic apparatus in mammals under conditions of acute poisoning consists of a central effect mediated through the vagus nerve and can be eliminated by cervical section. Apart from this central effect, aldrin, but not dieldrin, has also a definite though much weaker peripheral influence. To analyse the nature of the peripheral effect of aldrin, frog rectus muscle preparations were used suspended in Ringer's soln. to which were added whole blood samples from cats supplemented with acetylcholine before and after the i/v injection of aldrin. Blood withdrawn from cats 5 min. after i/v inj. of aldrin (but not of dieldrin) and incubated with acetylcholine for 1 min., induced an increased contraction of the rectus muscle preparation. On the basis of these findings the authors assumed that in the early stages of poisoning aldrin acts like an anticholinesterase, preventing the destruction of acetylcholine present in the blood.—E. Annau.

Sprehn, C. & Löliger, H. C. (1955). Über die toxische Wirkung des mit Aldrin gebeizten Getreides auf Hühner. **[Toxicity for fowls of cereals treated with aldrin.]** — *Berl. Münch. tierärztl. Wschr.* **68,** 298-300. [English summary.] **588**

Corn which has been treated with aldrin,

a naphthalene derivative, remains poisonous to poultry even after it has been washed several times with water. Poisoned birds develop staggering gait, torticollis, lameness and eventually complete paralysis. There is increased capillary permeability, with oedema of the parenchymatous organs and c.n.s.

—J. A. NICHOLSON.

See also absts. **517** (fatal haemorrhages in fowls caused by rape pasture); **613** (suitability for human consumption of beef from arsenic-poisoned cattle); **661** (report, N. Rhodesia).

PHARMACOLOGY AND GENERAL THERAPEUTICS

STOWE, C. M. (1955). **Intravenous injection of succinyl-dicholine chloride.** [Correspondence.]—*Vet. Rec.* **67,** 174-175. **589**

Rapid i/v injection of up to 1 mg./kg. succinyl-dicholine chloride produces transient muscle paralysis in horses within 30 sec. Paralysis may last for 10 min. followed by recovery within 10 min., exact times depending on dosage. Apnoea, necessitating artificial respiration, may occur with large doses. The use of the drug in cattle is contra-indicated on account of the low level of plasma cholinesterase in that species.—J. M. LEACH.

HAAS, K. B. (1955). **Use of neomycin and erythromycin in veterinary practice.**—*Vet. Med.* **50,** 460-462 & 466. **590**

A brief discussion of these antibiotics, their actions, current indications for use and recommended dosages. Neomycin is used in bovine mastitis, dysentery and for the topical treatment of certain infections of eyes, ears and skin. Erythromycin is effective against Gram-positive organisms and has been used for infections of the respiratory and urinary tracts in small animals.—D. POYNTER.

DE SOMER, P., VAN DE VOORDE, H., EYSSEN, H. & VAN DIJCK, P. (1955). **A study on penicillin toxicity in guinea pigs.**—*Antibiot. & Chemother.* **5,** 463-469. [Spanish summary.] p. 519. **591**

Investigation of the possible cause of fatal illness in g. pigs following penicillin treatment revealed that the normal Gram-positive intestinal flora disappears (with the exception of enterococci, which are not sensitive to penicillin) and is replaced by a Gram-negative flora in which coliform organisms predominate. A similar illness with the same picture at P.M. examination was found to follow the i/p injection of 1 ml. of a sterile culture filtrate of the coliform organism. The same results followed the oral administration of bacitracin, which is not absorbed when given by this route. It would therefore appear that the illness is caused by the change in the intestinal flora and probably ultimately by absorption from the intestine of the toxins of the Gram-negative organisms. G. pigs which survive a first dose of penicillin become resistant to massive doses; if the treatment is continued they become chronically ill with a condition resembling a nutritional deficiency or an intoxication.—F.E.W.

ROINE, P., ETTALA, T., RAITIO, A. & VARTIOVAARA, U. (1955). **The mode of action of aureomycin in the guinea-pig.**—*Brit. J. Nutr.* **9,** 181-191. **592**

Aureomycin proved fatal to g. pigs in oral doses equivalent to those promoting growth in many other species. Large parenteral doses also proved harmful. Penicillin both prevented and cured these harmful effects. Bacteriological investigations supported the hypothesis that in this species the *Erysipelothrix (Listeria)* population of the gut becomes predominant owing to the suppression of other intestinal organisms, causing most of the animals to die within a fortnight.

—G. P. MARSHALL.

SIMESEN, B. (1955). Sulfabenzpyrazin til kvaeg. **[Use of sulphaquinoxaline in cattle.]**—*Nord. VetMed.* **7,** 625-640. [In Danish. English and German summaries.] **593**

Notes are given on determination of sulphaquinoxaline in the blood of cattle. Intravenous injection of the drug is contra-indicated in cattle. When it is given *per os,* alkaline diuretics are necessary to avoid injury to the kidneys.—F. R. PAULSEN.

OBERST, F. H. (1955). **A study of the use of oxygen to volatilize ether for anesthesia in horses.**—*Thesis, Cornell.* pp. 61. **594**

An account of studies to develop a practical and usable technique for the induction of surgical anaesthesia in the horse, particularly for prolonged periods as in abdominal surgery. A method using ether volatilized by oxygen is described. Although this means could not as yet be described as completely satisfactory, its advantages included safety, economy, adequate loss of sensation, complete muscular relaxation, satisfactory induction, and reasonable recovery time.

From 570 to 1,260 ml. of ether were used to induce and maintain surgical anaesthesia in horses weighing from 650 to 1,250 lb. in 40 trials. The average ether administration time was 46·75 min. with an av. induction time of 21·4 min. In one trial anaesthesia was maintained for 48 min. In all other trials no attempt was made to maintain it for more than 30 min.—H. L. Gilman.

Mosimann, W. (1954). Die sensiblen Nerven von Horn und Ohrmuschel beim Rind und die Möglichkeit ihrer Anästhesie. [**Sensory nerves of the horns and ear muscles of cattle, and the possibility of anaesthetizing them.**]—*Schweiz. Arch. Tierheilk.* **96,** 463-469. [English, French and Italian summaries.] **595**

The cornual nerve lies 7–10 mm. below the skin, covered by the frontal muscle, and 2·5 cm. from the horn base, and between this and the outer corner of the eye. It is easily accessible for anaesthesia, unlike the internal auricular nerve. The ear is anaesthetized by injection of the auricular branch of the 2nd cervical nerve near the lower process of the atlas, and on a line between the base of the ear and the horn.—F. R. Paulsen.

Frey, H.-H. & Soehring, K. (1954). Untersuchungen über die Durchlässigkeit der Dura mater des Hundes für Procain. II. Procainnachweis im Rückenmark während der Epiduralanästhesie. [**Permeability of the dura mater of the dog for procaine. II. Procaine in the spinal cord during epidural anaesthesia.**]—*Arch. exp. VetMed.* **8,** 803-806. **596**

F. determined the amount of procaine within the spinal cord of 39 dogs, killed 10–60 min. after the epidural injection of 2% aqueous procaine solution. He found that amounts of procaine well above the threshold required for anaesthesia had penetrated the dura mater into the spinal cord and particularly into the roots of the spinal nerves. Anaesthesia resulting from epidural injection of procaine was largely accounted for by the extent of this penetration.—R.M.

Owen, L. N. (1955). **The narcotic effects of thiambutene in the dog and its antagonism by nalorphine.** — *Vet. Rec.* **67,** 561-566. [Author's summary modified.] **597**

The narcotic and other actions of thiambutene (3-diethylamino-1 : 1-dithienylbutene hydrochloride) were studied in 120 dogs of various breeds. The drug was administered in doses of 10 mg. per lb. body wt. s/c or 2 mg. per lb. i/v. Light, medium or deep narcosis was produced after i/v or s/c administration; medium and deep narcosis were observed more frequently when the drug was given i/v. No adverse changes were observed in the pulse or respiratory rates; a fall in body temp. was frequently noted, but this did not impair the recovery of the dogs. Increased salivation or defaecation occurred in 37 dogs, but the only serious toxic effects consisted of convulsive movements of the limbs, or apnoea, seen in 6 dogs and 2 puppies after i/v injection. The narcotic effects of thiambutene are rapidly terminated by an i/v injection of nalorphine (N-allylnormorphine) and a mild hypnotic effect often appeared later in dogs so treated. The only death occurred in a severely dyspnoeic bulldog which died several hours after operation.

See also absts. **357** (tetracycline in shipping fever); **359** (fowl cholera); **373**; (aureomycin and chloramphenicol in salmonellosis of pigeons); **416-419** (trypanocides); **430** (nitrofurazone); **445** (thiobarbitone anaesthesia in calves); **490-492** & **585-588** (insecticides); **507-508** (anthelmintics); **545-548** (ketosis).

PHYSIOLOGY, ANATOMY AND BIOCHEMISTRY

Bligh, J. (1955). **Comparison of rectal and deep body temperature in the calf.** [Correspondence.] — *Nature, Lond.* **176,** 402-403. **598**

From a series of experiments it is concluded that although rectal temp. is slightly above the temp. of the blood leaving the left side of the heart under any but the most adverse conditions of climatic stress, for all practical purposes pertaining to environmental studies with the bovine animal, upward changes in rectal temp. in response to external heat stress indicate changes of a similar magnitude in "deep body" temp.

—W. S. Marshall.

Ferguson, K. A. & Dowling, D. F. (1955). **The function of cattle sweat glands.**—*Aust. J. agric. Res.* **6,** 640-644. [Authors' summary modified.] **599**

Evidence is presented that the apocrine sweat glands of cattle have a temperature-regulating function. Under the stereo microscope, sweat droplets could be observed forming at the openings of the sweat gland ducts in response to i/d injections of adrenaline, and during exposure to high temperature. Quantitative measurements suggest that the evaporation of this sweat is the main source of heat loss in hot environments.

WIDDICOMBE, J. G., HUGHES, R. & MAY, A. J. (1955). **The efficiency of filtration by the popliteal lymph node of the rabbit.**—*Brit. J. exp. Path.* **36,** 473-478. [Authors' summary modified.] **600**

The efficiency with which the popliteal lymph node of the rabbit removes bacteria and r.b.c. from the afferent lymph was determined. When *B. anthracis* spores were injected a mean of 9% passed through the node. With *B. subtilis* spores, 21% passed through; with *B. subtilis* vegetative forms, 19% passed; and with *B. anthracis* vegetative forms, 0·03% passed. The percentage recovery of organisms bore a positive correlation with the rate of lymph flow. The percentage recovery of r.b.c. depended on the number injected. Means of 6 and 26% were obtained with small and large numbers of r.b.c.; massage of the node caused a further release.

KOSHI, J. H. & PETERSEN, W. E. (1955). **Complementary milk and its relationship to lactation.**—*J. Dairy Sci.* **38,** 788-796. **601**

Sixty-two cows were used in 1,327 trials over one year; they were hand-stripped dry, given 10 units of oxytocin intravenously, and then hand-stripped for complementary milk (c.m.) yielding a mean of 1·7 lb., with a max. of 13·3. The yield of c.m. was independent both of stage of lactation and of size of normal yield. Percentage of the normal yield was a more consistent criterion of the cow's response, than absolute yield of c.m.

—F. L. M. DAWSON.

KING, J. O. L. (1955). **Variations in the quantity and composition of milk yielded by diseased cows while their body temperatures were elevated.**—*Vet. Rec.* **67,** 432-435. **602**

K. examined the milk of 28 cows with fever following various surgical operations, mostly rumenotomy and Caesarian section. A rise in body temp. was accompanied by a fall in milk yield, an increase in the fat content of the milk, and a decrease in the solids-not-fat content.—R.M.

NIEPAGE, H. (1954). Zur Beurteilung des Hämoglobinwertes beim Rinde. **[Haemoglobin values in cattle.]**—*Mh. VetMed.* **9,** 421-425. **603**

In order to obtain some normal values, blood examinations were carried out on 36 cows, 4 to 9 years old, at different seasons of the year. In summer the r.b.c. varied between 7–8 million per cu. mm. and were reduced to 6–7 million in autumn and 5–6 million in winter. The haemoglobin values likewise showed a variation of from 8–18 g.% in summer to 9–10 g.% in winter. Disease or milk yield could not be shown to be responsible for the variations, food and housing being the only variants. It was concluded that a Hb value below 13 g.% in summer and 10 g.% in winter is indicative of anaemia.

—J. A. NICHOLSON.

GREENBERG, M. S. (1955). **Method for measuring mechanical fragility of dog red cells.**—*Proc. Soc. exp. Biol., N.Y.* **89,** 320-322. [Author's summary slightly modified.] **604**

Large variations were found in the mechanical fragility of r.b.c. in fresh samples of defibrinated, oxalated or heparinized dog blood, unless the samples were allowed to stand for several hours at room temp. However, reproducible and apparently physiologically significant measurements of the fragility were obtained if the r.b.c. were washed free from plasma and suspended in isotonic saline during their exposure to the standard trauma of rotation with glass beads.

LAMPORT, H. (1954). **The transport of oxygen in the sheep's placenta: the diffusion constant of the placenta.**—*Yale J. Biol. Med.* **27,** 26-34. **605**

The diffusion constant derived mathematically from an experimental model of placental blood flow agrees with the values found in the literature. Theory shows the actual opposed flow of maternal and foetal blood to be more efficient than when both are assumed to flow in the same direction..—A. SEAMAN.

THOMSON, A. P. D. & ZUCKERMAN, S. (1955). **Anterior-pituitary-hypothalamic relations in the ferret.**—*Nature, Lond.* **175,** 74-76. **606**

Oestrus in response to light was obtained in a ferret in which the pituitary stalk had been divided and separated by a plate of waxed paper. P.M. examination and a wax reconstruction revealed a double plate of bone and fibrous reaction tissue between the hypothalamus and anterior pituitary, the possibility of the pituitary portal vessels being essential for the response being thus eliminated.—A. SEAMAN.

KNOCKER, P. (1955). **Effects of experimental hypothermia on vital organs.**—*Lancet.* **269,** 836-840. [Author's conclusions modified.] **607**

When hypothermia is induced in dogs, histopathological changes take place in the liver, kidneys, and adrenal glands, even when the animals are not cooled beyond the point

generally regarded as ideal for surgery. The cell changes closely resemble those reported by other workers as resulting from various forms of stress, and are perhaps attributable to tissue anoxia. If, as seems likely, they may readily become irreversible, this would account for some hitherto unexplained deaths of animals during experimental hypothermia.

JORDAN, W. J. & GRAY, I. (1955). **The biochemical response to trauma. I. Nucleotide changes in tourniquet shock.**—*J. biol. Chem.* **215,** 669-676. **608**

Adenosine triphosphate (ATP) was measured by ion exchange chromatography, in the cardiac and skeletal muscle of normal rats and of rats subjected to shock by the application of a tourniquet. While heart levels remained unchanged the ATP in skeletal muscle dropped to 1/10th of the normal and was still depressed after 90 min. Two unstable inosine derivatives were detected. These changed spontaneously to inosine monophosphate.—JOHN SEAMER.

PUBLIC HEALTH, VETERINARY SERVICES AND VETERINARY EDUCATION

MARTIN, W. H., CLAYDON, T. J. & BARTLEY, E. E. (1955). **Aureomycin content, bacterial development, starter activity, and cheese quality of milk from cows fed an aureomycin supplement.** — *J. Dairy Sci.* **38,** 47-52. [Authors' summary and conclusions modified.] **609**

Milk from 20 cows, in 3 groups, was used to determine the effect of feeding aureomycin on (a) bacterial development in the milk, (b) amount of acid developed in starter-inoculated milk, and (c) cheese manufacture and quality. The rate of aureomycin feeding was equiv. to an av. of 390 mg. per cow daily.

There were no significant differences in total plate counts of the milk or in the amount of acid developed in the milk inoculated with starter from the 3 lots of cows. Cheddar cheese made from milk produced by treated cows and from milk produced by untreated cows was approx. equal in quality, and there was no marked difference in the rate of acid development or the amount of acid produced in the cheese. No detectable amount of aureomycin was found in milk from treated cows.

TAMMEMAGI, L. (1954). **The precipitin test in the detection of horse meat.**—*Qd J. agric. Sci.* **11,** 83-97. **610**

A detailed account of the preparation of high-level precipitating sera in rabbits, and of meat extracts for testing. The precipitin test described can be used for the identification of raw meat or of unmelted fat but not of meat cooked at a temperature higher than 80°C. for 10 min.—L. E. A. SYMONS.

TAMMEMAGI, L. (1954). **Effect of lipid-extraction on precipitating antisera.**—*Qd J. agric. Sci.* **11,** 99-105. **611**

Lipid-extraction of antisera prepared in rabbits for the detection of horse meat substantially lowers their sensitivity although the antibody titres are not affected. Such antisera must be stored in the liquid state at 4°C. as an opalescence develops in 75% of the samples if they are stored at below −25°C. for some days. Low temperatures do not affect the physical properties or the antibody titre of the lipid-extracted antisera which may therefore be stored in the frozen state.

—L. E. A. SYMONS.

KARVOUNARIS, P. A. (1955). **[The use of filtered ultraviolet light in meat inspection.]**—*Delt. Hellen. kten. Hetair.* **2,** 789-801. [In Greek. Abst. from French summary.] **612**

An account of the fluoroscopic method as a quick and simple means of determining the quality, freshness, adulteration, and extent of bleeding of meat and fish, and of testing for leakages in tinned foods.—M.G.G.

SCHELLNER, H. & DAIGELER, A. (1955). Beitrag zur Beurteilung von Fleisch arsenvergifteter Tiere. **[Suitability for human consumption of meat from animals poisoned with arsenic.]** —*Dtsch. tierärztl. Wschr.* **62,** 431-433. **613**

Three cattle were slaughtered while they had symptoms of poisoning, following the accidental administration of sodium arsenate. The meat and organs were examined histologically and chemically, and fed to dogs, cats, g. pigs and mice. The arsenic content of the meat was 0·2 mg./kg. and of the liver and kidney 2 mg./kg. The test animals showed no ill effects. The authors concluded that, with the exception of the viscera and udder, the carcasses were fit for human consumption.

—M.G.G.

STABLEFORTH, A. W. (1955). **The contribution of veterinary medicine to human health.** — *R. Soc. Hlth. J.* **75,** 508-512. **614**

Veterinary medicine can contribute to

human health (1) by reducing the enormous wastage of milk, meat, and eggs caused by disease in livestock; (2) by control or eradication of animal diseases transmissible to man; (3) by encouragement in the individual of a way of thought with regard to disease in his animals which is reflected in his attitude to human diseases, and *vice versa*. An account is given of the international activities of the World Health Organization and of the Food and Agriculture Organization.—W. R. Bett.

Anon. (1955). **Guide to the Agricultural Research Station, Nungua.** pp. 30. Accra. Faculty of Agriculture, University College of the Gold Coast. Items of veterinary interest pp. 10-12. **615**

The main subjects being studied are blood of normal cattle as influenced by age, sex, pregnancy, lactation, breed, climate; and climatic adaptation, water balance and heat tolerance under tropical conditions.

—W. S. Marshall.

Abishev, A. (1954). **[Veterinary services in the Kazakhstan S.S.R. under the new system of organization.]**—*Veterinariya, Moscow.* **31,** No. 10, pp. 9-13. [In Russian.] **616**

According to the Government decree large areas of virgin land in Kazakhstan were to be put under agriculture, particular attention being paid to animal husbandry, the principal economy of the republic. The overall numbers of livestock were to be increased considerably, with parallel improvement in quality. By 1955 it was proposed to increase the cattle population to 5 million, sheep and goats to 25,850,000 and pigs to 590,000. In addition livestock on free range on the steppes comprised 71,367,000 sheep and goats, 798,000 horses and camels and 214,000 cattle. Veterinary services were charged with the task of fulfilling these aims. In 1954 there were 1,177 veterinary centres with a staff of 2,376 and some 500 additional veterinary centres of various descriptions. Research work was being done at the Veterinary Institute with three experimental stations.

It was claimed that pulmonary diseases, glanders, and swine fever and fowl plague [Newcastle disease?] had been eliminated, and the incidence of other diseases reduced. The best successes had been obtained where the directors of machine and tractor stations, under whom all agriculture is run, worked in co-operation with the veterinarians. Where this had not been the case results had been inferior.

Veterinarians in charge of establishments have to hold periodic consultations with the heads of various departments of agriculture and with farm superintendents.

It was hoped that the targets of increased numbers of livestock would be reached in 2–3 years.—F. A. Abbey.

LIVESTOCK HYGIENE

Anon. (1955). **Poultry housing.**—*Bull. Minist. Agric., Lond.* No. 56. pp. 56. **617**

This, the first issue since 1935, is a well written concise account of all modern methods of poultry housing; it is well illustrated and exhaustive.—W. S. Marshall.

See also absts. **343** (tubercle bacilli in byres housing infected cattle); **344** (presence of tubercle bacilli in faeces of cattle on pasture).

REPRODUCTION AND REPRODUCTIVE DISORDERS

Kedrov, V. K. (1953). **[Artificial insemination in mares and cows and the determination of ovulation.]** pp. 103. Moscow: Gosud. Izdat. Sel'skokhoz. Lit. 1r.40k. [In Russian.] **618**

An account of the sexual physiology of the mare and the cow, with reference to its application in artificial insemination.

—F. A. Abbey.

Baker, F. N., VanDemark, N. L. & Salisbury, G. W. (1955). **The effect of frequency of ejaculation on the semen production, seminal characteristics, and libido of bulls during the first post-puberal year.**—*J. Dairy Sci.* **38,** 1000-1005. [Authors' summary modified.] **619**

In 9 Holstein bulls, sexual interest was first evident at an av. age of 29·4 weeks, and ability to ejaculate at an av. of 38·9 weeks. The transition from infantile to adult sexual function took approx. 10 weeks. Highly significant differences were found in semen volume, percentage of motile spermatozoa, spermatozoan concentration, total spermatozoa per ejaculate and total motile spermatozoa per ejaculate as the bulls aged during the first 12 months after puberty.

No significant differences in semen

volume, spermatozoan conc., percentage of motile spermatozoa, semen pH, total spermatozoa per ejaculate, total motile spermatozoa per ejaculate or percentage of atypical spermatozoa could be attributed to frequency of ejaculation when frequencies of once, twice and 3 times per week were compared. A highly significant reduction of libido, as measured by the proportion of failures to mount and ejaculate, was found in bulls scheduled to ejaculate 3 times per week. Ejaculation frequencies of up to 3 times per week were not harmful to the seminal characteristics nor to spermatozoan production of young bulls except in so far as they adversely affected libido.

De Silva, P. L. G. (1954). **Provisional investigations on an embryo diluent compared with egg-yolk citrate for preservation of bull semen.**—*Ceylon vet. J.* **2,** 47-52. **620**

Experiments with a diluent containing chick-embryo extract, glucose and antibiotics showed that the survival of stored bull semen was increased by reducing sodium ions and by introduction of the sugar.—F. R. Paulsen.

Bishop, M. W. H. & Salisbury, G. W. (1955). **Effect of dilution with saline and phosphate solutions on oxygen uptake of bull semen.**—*Amer. J. Physiol.* **181,** 114-118. [Authors' summary modified.] **621**

The oxygen uptake was studied at 37°C. Isotonic sodium chloride solution stimulated both respiration and viability of the spermatozoa and the effect was directly but not proportionately related to the degree of dilution. The use of diluents containing phosphate depressed both oxygen uptake and motility of the cells. The depressant effects were directly related to the concentration of phosphate ion present.

Blackshaw, A. W. (1955). **Factors affecting the revival of bull and ram spermatozoa after freezing to −79°C.**—*Aust. vet. J.* **31,** 238-241. [Author's summary copied *verbatim.*] **622**

Diluted bull and ram semen may be mixed with the glycerol-containing diluent at temperatures up to 15°C. without harmful effects on revival after freezing. Frozen bull and ram semen revived better when thawed at 40°C. than at 50°C. Egg yolk and lecithin gave the best results in semen diluents for freezing. Both milk and lipoprotein were inferior to egg yolk.

Bangham, A. D. & Hancock, J. L. (1955). **A new method for counting live and dead bull spermatozoa.** [Correpondence.] — *Nature, Lond.* **176,** 656. **623**

Using 26 untreated samples and 3 samples containing different proportions of killed spermatozoa, bull semen was diluted in a buffered saline solution in the proportion of 0·1–0·2 ml. of semen to 20 ml. buffered saline, and gently pipetted on to a filter bed consisting of 1·0 ml. dried acid-washed glass balls, mean diam. 200μ. By comparing the opacity of diluted semen before and after filtration, it was possible to estimate the content of dead spermatozoa in the samples.—M.G.G.

Christensen, G. C. & Dougherty, R. W. (1955). **A simplified apparatus for obtaining semen from dogs by electrical stimulation.**—*J. Amer. vet. med. Ass.* **127,** 50-52. **624**

The authors described a relatively simple and inexpensive electrical apparatus used with a rectal and a lumbar electrode to produce ejaculation in the anaesthetized dog.—R.M.

Tillmann, H., Czernicki, B. & Gehring, W. (1955). Zur Zytologie der Spermatogenese unter besonderer Berücksichtigung der Zytotypik. **[The cytology of spermatogenesis, with special reference to cell types.]** — *Zbl. Vet-Med.* **2,** 303-325. [English, French and Spanish summaries.] **625**

An illustrated account is given of the development of spermatogenic cells in various domestic animals. Polynuclear cells, regularly present in animals with normal spermatogenesis, arise through nuclear division not accompanied by simultaneous division of the cytoplasm. Phase contrast cytological methods, using fresh material obtained at biopsy or castration, were found to be superior to histological sections or stained films for clinical diagnosis and research.—W. R. Bett.

Rödel, L. (1955). Beitrag zum Mechanismus der Spermienreifung im Nebenhoden. **[Mechanism of maturation of spermatozoa in the epididymis.]** — *Fortpflanzung.* **5,** 49-51 & 81. **626**

Experiments with sodium sulphide, cysteine, and sodium bisulphite on the respiration of spermatozoa in the epididymis suggest that their maturation is caused by the stimulating action of H_2S on respiration. The epididymis contains an enzyme which catalyses the production of H_2S from cysteine and which is similar to cysteine desulphydrase.

Increased respiration is inhibited by the enzyme inhibitor, semicarbazide.

—W. R. Bett.

Moore, K. L. & Barr, M. L. (1955). **Smears from the oral mucosa in the detection of chromosomal sex.** — *Lancet*, **269**, 57-58. [Authors' summary slightly modified.] **627**

Smears were prepared from the oral mucosa of 140 persons (81 males and 59 females) and stained with cresyl echt violet. The characteristic female-sex chromatin was clearly visible in the epithelial-cell nuclei of females, while a similar chromatin mass was not seen in the cells of males. This method has the advantage of simplicity and is suggested as an alternative to skin biopsy for the detection of chromosomal sex in congenital errors of sex development.

Marberger, E., Boccabella, R. A. & Nelson, W. O. (1955). **Oral smear as a method of chromosomal sex detection.**—*Proc. Soc. exp. Biol., N.Y.* **89**, 488-489. [Authors' summary slightly modified.] **628**

A method is described for detection of chromosomal sex (in human beings) from a smear of oral mucosa cells. In 50 females 20–79% of the cells had sex chromatin bodies in the nuclei. The occurrence of similar masses in oral smears from 50 males ranged from 0–4%. The method offers the advantages of ease in securing suitable cells, rapidity in preparation and simplicity of interpretation.

Schönherr, J. (1954/55). Der positive Vaterschaftsnachweis beim Rind mit Hilfe der Abderhaldenschen Abwehrproteinasereaktion. **[Positive determination of paternity in cattle, with the aid of Abderhalden's defensive proteinase reaction.]**—*Wiss. Z. Humboldt-Univ.* **4**, 129-159. **629**

S. claimed to be able to determine paternity in cattle by applying Abderhalden's "defensive proteinase" reaction, which is based on the presence in the blood serum and urine of rabbits inoculated with serum protein from a given animal of "defensive proteinase" specific for the serum proteins of that animal and its descendants. Serum protein from each parent under test is mixed with "defensive proteinase" prepared from the urine of rabbits inoculated with serum protein of the progeny. Ninhydrin is added as an indicator of protein breakdown, and a positive result is indicated by an intense blue coloration after the mixture has been heated to 100°C. Using this technique, S. carried out a series of 8 experiments, in each of which he was able to confirm which out of 2 or 3 bulls was the sire of a given calf.—R.M.

Morgantini, F. (1954). Presenza di spermina nel siero di sangue di vacca gravida. **[Presence of spermine in the blood serum of pregnant cows.]**—*Ann. Fac. Med. vet. Pisa.* **7**, pp. 153-157. [English summary.] **630**

In experiments on the diagnosis of pregnancy in cows, M. employed a test for spermine in the blood described by Tokuoka (1950). It consisted of adding 1 ml. water and 0·1 g. copper carbonate (powdered malachite) to 1 ml. serum. The mixture was brought to boiling point and then allowed to cool. A positive result was the formation of a lilac blue coloration; a greenish-blue coloration was negative. The test was positive with the blood of 56 cows at various stages of pregnancy, from the 30th day onwards, and was negative in 30 non-pregnant cows.—R.M.

Heard, R. D. H., Jellinck, P. H. & O'Donnell, V. J. (1955). **Biogenesis of the estrogens: the conversion of testosterone-4-C^{14} to estrone in the pregnant mare.**—*Endocrinology*, **57**, 200-204. **631**

A mare, 6 months pregnant, was treated with testosterone-4-C^{14}. Oestrogen isolated from the urine during the 3 days after treatment was found to be appreciably radio-active, and as the possibility of radio-chemical contamination was apparently ruled out these findings were considered to indicate that the oestrogen was the result of direct conversion of testosterone, which may act physiologically as a precursor of oestrone.

—F. L. M. Dawson.

Smith, I. M. (1955). **The use of gonadotrophic hormone in goats during the anoestrous period.**—*Vet. Rec.* **67**, 527-528. [Author's summary slightly modified.] **632**

Seven of 10 anoestrous goats in late lactation, running loose with adult males, gave birth to 13 kids following two intramuscular doses of gonadotrophic hormone (pregnant mare's serum) with an interval of 24 days between injections.

Makino, S. (1955). **Notes on the cytological feature of male sterility in the mule.**—*Experientia.* **11**, 224-226. [In English.] **633**

Examination of spermatogenesis in the horse and donkey clearly showed the number of chromosomes to be 66 in the diploid stage

and 33 in the haploid. The same number was seen in the mule. There is no meiotic division in the gonads of the mule, although spermatogonial division occurs. It was ascertained with certainly that sterility in the mule is due to the lack of both maturation divisions.—M.G.G.

BRODAUF, H. (1954). Kritische Betrachtungen zur Diagnostik der Endometritis bei der Unfruchtbarkeitsbehandlung der Stute. **[Critical observations on the diagnosis of endometritis in the treatment of infertility in mares.]**—*Arch. exp. VetMed.* **8,** 692-723. **634**

An account of the diagnosis of endometritis in a large number of mares by rectal and vaginal examination and more especially by the macroscopic and microscopic study of the material obtained by uterine irrigation. It is necessary to differentiate between the histological picture in endometritis and during the oestrous cycle.—HUGH BOYD.

MOBERG, R. (1955). Pathologische Veränderungen der Eileiter und der Eierstocktasche beim Rind. **[Pathology of fallopian tubes and ovarian bursae of cattle.]**—*Fortpflanzung.* **5,** 14-18. [English summary.] **635**

Of 1,622 cows from abattoirs 15·5% had pathological changes in the fallopian tubes and ovarian bursae. Of 516 sterile cows 4·8% had these changes. In the majority of cases they are caused by adhesions to haemorrhages which may either occur during ovulation or result from manipulation of the ovaries.

—W. R. BETT.

PEZZOLI, G. (1954). Nuove osservazioni di granulomi lipofagici vaginali nelle bovine. **[Vaginal granuloma in cattle.]**—*Veterinaria, Milano.* **3,** No. 2, pp. 18-21. [English summary.] **636**

P. carried out macroscopic and microscopic examinations of vaginal granulomata from 10 cows. The tumours appeared to be of a granulomatous nature enclosing fat which had prolapsed into the vagina through lesions in the vaginal wall during parturition.

—R. G. MARES.

I. GÜNTHER, S. (1955). Die Geburtsfunktion der Hündin im Röntgenogramm. **[Radiological study of parturition in the bitch.]**—*Arch. exp. VetMed.* **9,** 37-82. **637**

II. GÜNTHER, S. (1955). Die Geburtsfunktion des Uterus bicornis unter physiologischen Verhältnissen. **[Function of the bicornual uterus during parturition under physiological conditions.]**—*Ibid.* 83-92. **638**

III. GÜNTHER, S. (1955). Die Geburtsfunktion des Uterus bicornis unter pathologischen Verhältnissen. **[Function of the bicornual uterus during parturition under pathological conditions.]**—*Ibid.* 93-103. **639**

I.—A radiological (contrast) study is presented of parturition in the bitch. In 9 animals giving birth to live puppies, emptying of the uterine cornua occurred in strict rotation. This rhythm was disturbed in two animals giving birth to dead puppies.

II.—Emptying of the bicornual uterus during parturition was studied in 17 bitches. Expulsion of the first foetus is determined by the difference in intra-uterine pressure in the two cornua. Physiological parturition function of the bicornual uterus occurs in strict rotation.

III.—Investigations on 18 bitches revealed that alternation occurs when only dead foetuses are born and in abortion. The rhythm is disturbed when both dead and live puppies are born: a dead foetus is expelled only after the birth of a live puppy.

—W. R. BETT.

See also absts. **362** (role of Bact. coli in diseases of genital system); **451** (losses of lambs from ewes immunized against bluetongue); **519** (effect of nutrition on oestrus and conception in heifers); **536** (mineral deficiencies and sterility in cattle); **545** (ovine pregnancy ketosis); **578** (effect of lead poisoning in ducks on fertility).

ZOOTECHNY

MCDOWELL, R. E., LEE, D. H. K., FOHRMAN, M. H., SYKES, J. F. & ANDERSON, R. A. (1955). **Rectal temperature and respiratory responses of Jersey and Sindhi-Jersey (F_1) crossbred females to a standard hot atmosphere.**—*J. Dairy Sci.* **38,** 1037-1045. [Authors' summary modified.] **640**

Jersey and Red Sindhi-Jersey (F_1) crossbred cows were subjected at regular intervals to a standard test atmosphere at 105°F. with a vapour pressure of 34 mm. Hg (wet bulb 92°F.). The mean response of rectal temp. was less in the crossbred animals than in the Jerseys, whether the animals were tested as young heifers, older heifers, dry cows, or lactating cows. The difference occurred also when comparisons were made between animals at the same level of production.

In heifers, both initial temp. and temp. during exposure were higher in the younger

animals, but the rise was similar at all ages. The reactions of dry cows were much the same as those of older heifers. The stage of lactation had little effect on the response of rectal temp. to heat, but the level of production had considerable effect. The rectal temp. during exposure tended to increase fairly steadily with production in Jerseys, but in F_1 crossbreds it quickly reached a level which did not rise with further increases in production.

There was marked seasonal variation in body temp. response. Repeatability of response was high in heifers when results were sorted by season, but low in lactating cows.

In heifers the respiratory response of the Jerseys to heat was greater than that of the crossbred animals, but when the animals were tested as lactating cows the reverse was found. No such differences were seen in dry cows. These findings confirm that differences in respiratory rate are the result and not the cause of differences in heat tolerance.

I. Beakley, W. R. & Findlay, J. D. (1955). **The effect of environmental temperature and humidity on the rectal temperature of calves.**—*J. agric. Sci.* **45**, 339-352. **641**

II. Beakley, W. R. & Findlay, J. D. (1955). **The effect of environmental temperature and humidity on the skin temperature of Ayrshire calves.**—*Ibid.* 353-364. **642**

III. Beakley, W. R. & Findlay, J. D. (1955). **The effect of environmental temperature and humidity on the temperature of the skin of the scrotum in Ayrshire calves.**—*Ibid.* 365-372. **643**

IV. Beakley, W. R. & Findlay, J. D. (1955). **The effect of environmental temperature and humidity on the ear temperatures of Ayrshire calves.**—*Ibid.* 373-379. **644**

V. Beakley, W. R. & Findlay, J. D. (1955). **The effect of environmental temperature and humidity on the respiration rate of Ayrshire calves.**—*Ibid.* 452-460. **645**

VI. Beakley, W. R. & Findlay, J. D. (1955). **The effect of environmental temperature and humidity on the frequency of the heart beat of Ayrshire calves.**—*Ibid.* 461-468. **646**

I. The rectal temperatures of three 4-month-old Ayrshire bull calves were measured in individual 6-hour daily exposures to 15, 20, 25, 30, 35 and 40°C. dry-bulb temp. at low humidity (17 mg./l. absolute humidity) and to 30, 35 and 40°C. at high humidity (7 mg./l. saturation deficit). The experiments on each animal lasted 45 consecutive days and consisted of 5 replications of these 9 environmental conditions. Measurements were made by means of a thermo-electric thermometer every 5 min. Under the temp. conditions in which calves are normally housed in the United Kingdom, and which seldom exceed 20°C., even very gross increases in humidity had little effect on the heat-regulating system of calves. The authors discussed the effect of acclimatization processes on the results of the experiments.

II. The skin temp. was measured at the same times as the rectal temp. in the experiments described above. Eight different areas of the skin of each calf were chosen: there were no consistent differences between the temp. of the skin of these areas. When a calf was subjected to a change in environmental temp. the skin temp. acquired its new value in approx. 10 min. The authors concluded that skin temp. did not provide a useful index of heat tolerance in cattle.

III. The scrotal temp. was also measured, by means of thermocouples, during the experiments described above. At an environmental temp. of 15°C. there was a large difference between the rectal temp. and the temp. of the skin of the scrotum, amounting to an average of 6·5°C. There was a constant difference, in the temp. range 15°–30°C., of 2·1°C. between the skin temp. of the trunk and the skin temp. of the scrotum; this difference steadily decreased as the environmental temp. rose from 15° to 40°C. The authors discussed the function of the scrotum as a thermoregulator, and the effect of high environmental temp. on reproductive function.

IV. The temp. of the outer surface of the ear flap was measured by means of thermocouples during the experiments described above. From 20°–40°C. at high and low humidity the temp. of the ear surface behaved in exactly the same way as the temp. of the skin of the trunk, except that at 35°–40°C. at high humidity the temp. of the ears was slightly lower than that of the skin of the trunk. There was a critical environmental temp. between 15° and 20°C., at which vaso-dilatation occurred in the ear, causing its temp. to rise from 17° to 36°C. The authors discussed these findings in relation to the presence of arterio-venous anastomoses in the ear.

V. The respiratory rate was measured during the experiments described above. The general behaviour of respiration rate at high humidity at 30°–35°C. was similar to that at low humidity, but the actual values observed

were higher, indicating that 30°–35°C. at high humidity had the same effect on respiration rate as 33°–46°C. at low humidity. At 40°C. at high humidity the respiration rate fell precipitously after approx. 30 min. exposure. Panting was considerably increased and there was profuse salivation. The authors compared these results with those of the skin and rectal temp. changes, and discussed imbalance in alkali reserves as a result of polypnoea.

VI. The heart rate, measured by means of an electronic cardiotachometer during the experiments described above, increased greatly when the humidity was raised to near-saturation at 35° and 40°C. The animal which was least tolerant of thermal stress according to the behaviour of the rectal temp. was also the one with the greatest increase in heart rate under these conditions. In such an animal the heart rate also took the longest time to return to normal. The variable nature of the heart rate and the fact that so many factors affect it, made it an unreliable index of heat tolerance in young cattle.—R.M.

NORVAL, J. (1954). **Emergency slaughter of food animals. Part of a paper read at the Health Congress of the Royal Sanitary Institute.**—*Vet. Rec.* **66,** 508-511. **647**

N. presented tables showing numbers of animals either slaughtered as true casualties, or sent to the abattoirs on account of chronic diseases in Edinburgh during the years 1947–52; and gave a commentary on each condition tabulated. Johne's disease had increased from 3·5% of the total in 1947 to 29·5% in 1952. He emphasized the dangers of passing meat infected with salmonella, but added that a routine bacteriological examination of all casualty carcasses is now carried out in Edinburgh. Cultures are made in MacConkey Bile Salt Medium for 12 hours, carcasses in which the presence of non-lactose-fermenting organisms is confirmed being detained for further examination.

—R. MACGREGOR.

NELSEN, O. E. (1955). **The effects of increased atmospheric pressures upon early chick development.**—*J. Morph.* **96,** 359-379. **648**

Embryonated eggs were exposed to an atmospheric pressure of up to 4 atmospheres at 38°C. for a period of 24 hours during the first 2 days of incubation without apparent harmful effect on the embryo. Exposure to higher pressures resulted in an increasing incidence of malformation or death of the embryo.—R.M.

TECHNIQUE AND APPARATUS

LIBENSON, L. & MCILROY, A. P. (1955). **On the mechanism of the Gram strain.**—*J. infect. Dis.* **97,** 22-26. [Authors' summary modified.] **649**

Gram-positive and Gram-negative organisms were treated with sulphydryl reagents before the Gram stain was applied. Protein-free cellulose diffusion cells, used as a model, were submitted to the action of the Gram stain. The results indicated that neither SH groups nor basic proteins play any specific role in the mechanism of the Gram reaction, and that the main factors involved may be the permeability of the cell wall to crystal violet, the low solubility of the dye-iodine complex in alcohol and acetone, and the free access of the solvent to the complex.

CZAJKOWSKI, Z. & UGORSKI, L. (1955). Płuczka do oznaczania ilości drobnoustrojów w powietrzu. **[A device for the quantitative determination of micro-organisms in air.]**—*Méd. vét., Varsovie.* **11,** 281-286. [English and Russian summaries.] **650**

The air is sampled quantitatively by passing it through filtration fluid in a glass tube, the fluid being then mixed with 5% sugar agar at 50°C. A thin layer of the mixture is spread over the inside surface of the tube which is then incubated for 48 hours and the colonies counted.—J. R. MITCHELL.

ESKELUND, V. (1955). **Technique of making frozen sections and a new staining method.**—*Acta path. microbiol. scand.* Suppl. No. 105, pp. 27-29. [In English. Author's summary modified.] **651**

E. described a staining fluid containing brilliant cresyl blue and acid fuchsin, suitable for rapidly-frozen sections. Staining was accomplished in 30–60 sec. and the result was a picture of blue epithelial cells, red connective tissue, yellowish-brown erythrocytes, purple mast cells, and reddish mucus.

CHRISTOPH, H.-J. (1955). Zur Erythrozytensenkungsprobe in um 60° geneigten Westergrenröhrchen beim Hund. **[The red cell sedimentation rate in the dog in Westergren tubes inclined at 60°.]**—*Zbl. VetMed.* **2,** 590-597. [English, French and Spanish summaries. English summary modified.] **652**

In 102 dogs the sedimentation rate in inclined tubes was compared with that in vertical tubes. The values obtained after 7, 10 and 20 min. by oblique sedimentation corresponded to those after 1, 2 and 24 hours, respectively, with vertical tubes.

CUNNINGHAM, H. M., FREDERICK, G. L. & BRISSON, G. J. (1955). **Application of an inflatable urethral catheter for urine collection from cows.**—*J. Dairy Sci.* **38,** 997-999. [Authors' summary copied *verbatim.*] **653**

An inflatable rubber urethral catheter has been employed for the continuous collection of urine from dairy cows and heifers. Urine has been collected by this method for periods of up to 3 weeks without causing infection or imposing any undue strain upon the animal.

HANSARD, S. L. & COMAR, C. L. (1953). **Radioisotope procedures with laboratory animals.** *Nucleonics.* **11,** 44-47. **654**

An article on the management of laboratory animals before and after administration of isotopes, the technique to be followed in various methods of administration and balance studies after administration.—T.E.G.R.

See also absts. **332** (test for detection of Str. agalactiae in milk); **333** (typing of Str. agalactiae); **335** (differentiation between human and animal streptococcal pollution); **341** (rapid culture of tubercle bacilli); **396** (cultivation of leptospira); **405** (strain for fungi); **407** (cultivation of caprine pleuro-pneumonia organism); **447** (growth of murine encephalomyelitis virus); **454** (tissue culture of Teschen disease virus); **624** (electro-ejaculation in dogs).

MISCELLANEOUS

HOFMEYR, C. F. B. (1955). **Cholecystoduodenostomy in the cow.**—*J. Amer. vet. med. Ass.* **126,** 459-462. **655**

An account of cholecystoduodenostomy in two cows which presented clinical signs of obstructive jaundice. The operation was performed with the cow standing and under local anaesthesia, and was successful in each case. One cow died 5 months later from an unrelated cause: the anastomosis was patent and the bile ducts had resumed normal size. The van den Bergh test for bilirubin in the blood of these animals did not yield the reaction normally obtained in cases of obstructive jaundice.—R.M.

BRASS, W. (1955). Faszientransplantation zum Ersatz von Kniegelenkbändern beim Hund. **[Transplantation of fascia in the repair of ruptured ligaments of the knee joint in the dog.]** — *Dtsch. tierärztl. Wschr.* **62,** 208-210. **656**

The operative technique is described and the results are reported in eight dogs, 5 of which had been lame for more than 3 months and 2 for 3–6 weeks. The anterior cruciate ligament was ruptured in all cases, in 5 the internal meniscus was involved, in 2 the external meniscus, and 6 showed signs of osteoarthritis. Complete functional cure within one to two and a half months resulted in 4 animals, and 3 were considerably improved.—W. R. BETT.

REPORTS

GREAT BRITAIN. (1955). **London School of Hygiene and Tropical Medicine. Report on the work of the School for the year 1953-54.** pp. 136. London: The School. **657**

Research included:— the biology of *Trombicula autumnalis;* potential vectors of myxomatosis in rabbits; study of a microsporidium which parasitizes a cestode (transmitted by mites) living in the alimentary canal of sheep. Investigation on the incidence of *Toxoplasma* in England is being continued; it has been shown that 50% of the dogs in the Battersea Dogs' Home had had the infection. Strains from domestic rabbits and a man were isolated. Observations were started on the occult trypanosomes of various animals and man; Serology of *Sarcocystis* infections in animals.

Research students have been working on (1) helminth parasites of veterinary importance; (2) various aspects of ascarid parasites.

Work continued on an analysis of cross-resistance patterns of five different drug-resistant strains of *Trypanosoma rhodesiense.* An extensive study has been made of the effect of pH on the *in vitro* trypanocidal action of representative drugs on normal and resistant strains in an attempt to detect changes in ionizing "receptor" function associated with the development of resistance.

—J. A. GRIFFITHS.

GREAT BRITAIN. (1954). **Twenty-eighth annual report of UFAW (The Universities Federation for Animal Welfare), 1st July, 1953 to**

30th June, 1954. pp. 32. Tunbridge Wells: Courier Co. Ltd. **658**

This report covers the research carried out on the electrocution of dogs by Longley [*V.B.* **20**, 2103; **21**, 2503], Croft [*V.B.* **22**, 3555; **23**, 2957] and others, as well as Dr. Croft's work on the electrical stunning of pigs.

Other sections deal with trapping, humane destruction of day-old chicks, protection of animals in Nigeria, the feeding of reptiles with live animals, laboratory animals, overstocking of dairy cows in markets, oil pollution of the sea, British wild mammals, and electric harpooning of whales..

—J. A. Griffiths.

Northern Ireland. (1954). **Twenty-seventh annual report of the Agricultural Research Institute of Northern Ireland, Hillsborough, Co. Down, 1953-54.** pp. 38. Hillsborough: The Institute. **659**

Bacteriological surveys, treatment with penicillin and strict attention to hygiene had no effect on the number of chronic cases of mastitis. This also applied to the intramammary use of terramycin hydrochloride in a herd in which the organism concerned had become resistant to penicillin, except in 2 cows being dried off which were completely cured.

—J. A. Griffiths.

Union of South Africa. (1954). **City of Johannesburg. Report of Director, Abattoir and Live Stock Market Department for the period 1st July, 1953, to 30th June, 1954.** [Robinson, M. C.] pp. 18. Johannesburg: Radford, Adlington, Ltd. **660**

Over 32,700 animals passed through the Livestock market and 1,173,726 animals were slaughtered in the abattoir (cattle 286,866; calves 35,914; sheep and goats 707,398; pigs 138,552; horses, mules and donkeys 4,996). Condemnations of meat and offal amounted to 2,413 tons. Cysticercosis (present in 2·993% of beef and 1·664% of pork carcasses) was the main reason for condemnation. Other reasons were emaciation, bruising, gangrene, pleurisy and peritonitis, pyaemia, pneumonia, and jaundice of carcasses. Liver was condemned mainly on account of Fascioliasis and Stilesia infections; and sheep and goats mainly for Lymphadenitis.

Veterinary inspection of 1,588 dairy cattle revealed TB. in 0·56% and Mastitis in 16%. In tests for Brucella Infection, 65% of 1,588 cattle were reactors to the ring test and 23% of 966 head were reactors to the agglutination test. Dairy herds inspected comprised 81,060 head. In cattle 189 cases of Three-Day Stiff Sickness occurred among 2,355 head.—J. A. Griffiths.

Northern Rhodesia. (1955). **Department of Veterinary Services Annual Report for the year 1954.** [Hobday, J. H. N.] pp. 19. Lusaka: Government Printer. 1s. **661**

F. & M. Disease was the main problem in the early part of the year. Rabies continues and cutaneous Streptothricosis (Senkobo Skin Disease) was again prevalent. A high incidence of Tuberculosis was discovered on a farm in the Mazabuka district. The tick-borne diseases as usual gave trouble in grade cattle when any slackening of the tick-control routine was allowed to occur. Newcastle Disease also reappeared and Avian Encephalomyelitis was diagnosed in poultry imported from South Africa. The Research Service was greatly restricted owing to the staff being engaged on F. & M. Disease duties. Over 250,000 cattle received 1 ml. of a 1 : 400 dilution of vesicle lymph and epithelial tissue suspension in normal saline. Considerable progress was made in controlling Rabies in the European area and compulsory vaccination was well accepted.

The intractable condition of Streptothricosis is widespread in Northern Rhodesia. "Annabac", a quaternary ammonium detergent compound gave good results but is unsuitable for use in field conditions.

Toxaphene Poisoning—The increasing use of cattle dips based on toxaphene prompts a warning of the extreme susceptibility of dogs to this material.—D. S. Rabagliati.

India. (1955). **Annual Report of the Indian Veterinary Research Institute, Mukteswar and Izatnagar for the year 1949-50.** pp. 80. Simla: Government of India Press. Rs. 3/8/- or 5s. 6d. **662**

The Nakamura 111 strain of lapinized Rinderpest virus was being maintained and used. Immunity tests on cattle, buffaloes, sheep and goats showed that it had conferred immunity up to a year. Of 61 strains of Foot and Mouth Disease virus isolated from outbreaks in India, 19 were type O, 16 were variants of type O, 5 type A, 13 variants of type A, 2 type C, 5 variants of type C, and one was atypical. Immunity tests with a polyvalent crystal violet vaccine revealed that six cows, six sheep and a goat vaccinated in January 1949 were immune in December 1949. An avianized Newcastle Disease vaccine is being used in the field and was being applied

by wing stick method. Other strains of virus being maintained were FOWL POX, sheep DERMATITIS, goat DERMATITIS, SHEEP POX, GOAT POX, CONTAGIOUS PUSTULAR DERMATITIS of goats and four strains of EQUINE ENCEPHALOMYELITIS.

Tuberculin testing carried out on three Government farms yielded positive reactions at Dehra Dun in 15·9% of 220 cattle and 19·6% of 466 buffaloes; at Mukteswar in 0·63% of 158 dairy cattle and at Karnal farm in 60·94% of 64 cattle. JOHNE'S DISEASE occurs in cattle, sheep and goats. Tests with johnin suggested that 14·42% of 104 cattle and 3·77% of 398 sheep and goats were infected.

The ENCEPHALOMYELITIS syndrome in horses had been attributed to Eastern strain of encephalomyelitis virus. A setback to this theory was the identification in the U.S.A. of a suspected encephalomyelitis virus from India as a rabies virus. An intensive study of the micro-pathology of suspected cases of encephalomyelitis in horses and mules revealed degenerative changes in the c.n.s., including endarteritis, cuffing of the blood vessels, congestion of the pia mater and degeneration of nerve cells. There is evidence that trypanosomes occur in the c.n.s. and that degenerative changes take place which lead to incoordination and paralysis. The suggestion appears to be that cases of surra and perhaps rabies have in the past been mis-diagnosed as encephalomyelitis.

Other diseases investigated were HORN CANCER (33 cases); CAPRINE CONTAGIOUS PLEURO-PNEUMONIA (test vaccinations); ENTEROTOXEMIA of sheep; THEILERIASIS of lambs *(Th. ovis);* HEPATOZOON CANIS in a stray dog; MILLET POISONING in man and animals; mortality among rabbits due to PASTEURELLOSIS.

There are sections on animal nutrition, poultry research and animal genetics.

Antrycide (quinapyramine) was effective in the treatment of SURRA *(T. evansi).* RICKETTSIASIS *(R. ovina* infection*)* occurred among experimental sheep in which the rickettsial bodies were observed in the monocytes of the peripheral blood. In one animal which died pneumonic lesions were present in the anterior lobe of each lung. Lung smears revealed *R. ovina* in the monocytes. Rickettsia have also been noted in cattle and g. pigs.

Eimeria arloingi, E. faurei, E. ninae-kohlyakimovi and *E. crandallis* were found in sheep and goats at the Institute. *E. maroteli* n. sp. was found in a goat at Mukteswar. Faecal samples from Hyderabad contained in addition *E. intricata. Entamoeba debliecki* occurred in goat faeces. An entamoeba not then identified was found in sheep. *E. bovis* was found in the faeces of a cow with dysentery. Emetine hydrochloride treatment was effective.

Schistosoma indicum, the commonest blood fluke of domestic mammals in India, was transmitted experimentally by *Limnaea luteola.* Studies are in progress on the life histories of *Moniezia expansa* and *M. benedeni* of ruminants: oribatid mites have been infected and larval stages of *M. benedeni* have been identified in the mites. The tapeworm of the fowl, *Raillietina cesticillus* was found to be transmitted by beetles of the species *Anthicus confucii* and *Opatroides vicinus,* the first-named being the principal natural host. The seasonal incidence of cysticercoids in this host has been studied. The life history of *Choanotaenia infundibulum* of the fowl has been worked out in detail: several species of beetles and grasshoppers serve as intermediate hosts. *Parafilaria bovicola,* which causes cutaneous haemorrhagic nodules in cattle, appears to be transmitted by species of *Musca.*

—J. A. GRIFFITHS.

SARAWAK. (1955). **Department of Agriculture Annual Report for 1954.** [MILLER, R. W. R.] pp. 40. Kuching: F. W. Lane, Govt. Printer. [Items of veterinary interest pp. 20-21.] **663**

The following conditions have been met with:— HAEMORRHAGIC SEPTICAEMIA, PASTEURELLOSIS, THEILERIASIS and infestation with ecto- and endoparasites.

NEWCASTLE DISEASE still causes great losses but where possible inoculations of poultry have been carried out with considerable benefit, though at present this is only practical in the larger centres of population.

There is evidence that *Rickettsia* infection is present in cattle and dogs.

As far as is known, the Colony is free from RABIES, BOVINE CONTAGIOUS PLEURO-PNEUMONIA, RINDERPEST, FOOT AND MOUTH DISEASE and SWINE FEVER.

Meat inspection is carried out by the staff of the Medical and Health Services, but a watching brief is kept on this work.

Plans are well advanced for the construction of a veterinary clinic and laboratory at Kuching.—D. S. RABAGLIATI.

TRINIDAD AND TOBAGO. (1954). **Administration report of the Director of Agriculture for the year 1953.** pp. 70. Trinidad, B.W.I.: Govt. Printing Office. 72c. [Report of Veterinary Officer, Williams, H. E. pp. 36-48.] **664**

Forty-two cases of bat-transmitted RABIES were reported; 4,505 animals were vaccinated with avian attenuated vaccine. Bat destruction is continued. NEWCASTLE DISEASE and FOWL POX were being controlled effectively by simultaneous immunization of chicks, 3 days old, with B_1 intranasal and with fowl pox vaccine. SWINE FEVER was controlled with crystal violet vaccine.

Tuberculin testing of 3,386 cattle revealed that 1% were reactors; of 581 buffaloes 14·5% were reactors. All of 16 goats, 13 pigs and 350 poultry tested were negative.

Other diseases mentioned were:—TRICHOMONIASIS (15 of 20 bulls examined were infected); ANAPLASMOSIS, PIROPLASMOSIS and ACETONAEMIA in cattle; TETANUS in horses, pigs and goats; STRANGLES in mules.

In the Diagnostic Laboratory 6,322 specimens were examined. A preliminary survey of bovine blood chemistry was made. Tests were made of vaccines before they were used in the field. In a feeding test with pigs, using 1% "aurofac" (an aureomycin supplement) with the regular feed, normal pigs made no better weight gains than controls fed no supplement, but unthrifty pigs gained 3·5 to 3·8% more weight. Calves given rumen ingesta from adult cattle after weaning at six months of age made better weight gains than controls, and in 60% of the treated calves the gains were 25 to 42% better than those of the controls.—J. A. GRIFFITHS.

BECHUANALAND PROTECTORATE. (1954). **Annual Report of the Department of Veterinary Services for the year ended 31st December, 1953.** [ROE, J. E. R.] pp. 34. **665**

There were losses from ANTHRAX among non-inoculated animals; 935,909 cattle were vaccinated. In some districts losses from BLACKLEG were severe through lack of prophylactic precautions by the owners; 93,344 cattle were vaccinated. Compulsory free vaccinations of all female cattle against CONTAGIOUS ABORTION are gradually being carried out. It is estimated that 20% of female cattle are infected. BOTULISM and APHOSPHOROSIS is widespread and causes severe losses in some overstocked areas. Over 18,000 animals were vaccinated against the disease. A bone meal factory was being established.

ANAPLASMOSIS occurred among cattle imported from the Union of S. Africa. TRYPANOSOMIASIS is a great problem in Ngamiland owing to cattle being taken into the tsetse zones for grazing and water; 930 of these animals were treated with dimidium bromide and 11,140 cattle exported were treated with antrycide.

RABIES is endemic in the Northern Protectorate. Owners of dogs are now seeking vaccination as a protection. Africans are more aware of the dangers of infection and seek treatment when bitten. 1,511 stray dogs were destroyed and 766 dogs vaccinated. Africans, who own most of the horses, have great faith in AFRICAN HORSESICKNESS vaccine; 758 animals were vaccinated. Two outbreaks of BOVINE MALIGNANT CATARRH occurred and, in both, wildebeest had been in contact with the cattle infected. Although there was no outbreak of F. & M. DISEASE the defensive measures to prevent the movement of livestock from infected Territories were maintained. HEARTWATER is spreading in the Bamangwato Reserve.

Other diseases mentioned are:—MASTITIS due to tick infestation; HELMINTH INFESTATION, particularly in sheep and goats; STREPTOTHRICOSIS during the rains (44 deaths); MANGE in Ngamiland, successfully treated with benzene hexachloride; CALF PARATYPHOID causing severe losses—the use of vaccine is unpopular—losses were greatest when there was a drain of milk for cream production. There is also mention of ENTERO-TOXAEMIA, EPHEMERAL FEVER, PASTEURELLOSIS, PIROPLASMOSIS, "LUMPY SKIN" DISEASE, DOG DISTEMPER and "HARD PAD" DISEASE, FOWL TYPHOID and a few cases of DOURINE.—J. A. GRIFFITHS.

I. THE GAMBIA. (1953). **Annual Report of the Department of Veterinary Services for the year 1952.** [WALSHE, S. L. H.] pp. 15. Bathurst: Government Printer. 2s. **666**

II. THE GAMBIA. (1954). **Annual Report of the Department of Veterinary Services for the year 1953.** [WALSHE, S. L. H.] pp. 13. Bathurst: Government Printer. 2s. **667**

I. & II.—In 1952 the joint Veterinary Department of Sierra Leone and Gambia ceased to exist and a separate Veterinary Department for each colony was reformed, Gambia starting with a staff of a Senior Veterinary Officer and one Veterinary Officer, with a Laboratory Superintendent.

Two outbreaks of RABIES in dogs were

confirmed in 1953. There was a small outbreak of RINDERPEST in 1953. Over 27,000 cattle were immunized in 1952 and nearly 9,000 in 1953. Lapinized virus was used. Formolized spleen vaccine is used to protect trade cattle in transit.

About 15,000 cattle were vaccinated against BOVINE CONTAGIOUS PLEURO-PNEUMONIA in 1952 and over 27,500 in 1953. Sporadic outbreaks of ANTHRAX and of BLACKLEG were controlled by vaccination of cattle in the infected areas.

TRYPANOSOMIASIS occurs in cattle, horses, pigs and dogs. The N'dama cattle have considerable resistance. In horses, pigs and dogs treatment with antrycide is effective.

Other diseases mentioned are SCABIES of goats and dogs, also FOOT ROT in cattle, sheep and goats. The clinics at Veterinary Stations dealt with many sick animals.

Details are given of the routine diagnostic work of the Laboratory and of the issue of vaccines and sera; also of the Department's work on animal husbandry.—J. A. GRIFFITHS.

TANGANYIKA. (1955). **Annual Report of the Veterinary Department, 1954.** Vol. 1. [DAWE, E. C. S.] pp. 30. Dar es Salaam: Government Printer. Shs. 3/50. **668**

RINDERPEST was a major problem in the Lake and Western Provinces. In 47 outbreaks mortality was 6,462 head, mainly young animals. Factors in the maintenance of the disease are evasion of vaccination and the impossibility of giving effective immunity to calves. Only one case of BOVINE CONTAGIOUS PLEURO-PNEUMONIA was diagnosed. EAST COAST FEVER is endemic in many cattle areas, and ANAPLASMOSIS is often associated with EAST COAST FEVER. PIROPLASMOSIS (Babesia infection) occurs sporadically in cattle, horses and dogs. RICKETTSIASIS is probably more widespread than present knowledge shows.

Many more animals are treated for TRYPANOSOMIASIS each year. Dimidium bromide is mainly used, but also ethidium bromide and some antrycide "pro-salt" (quinapyramine prophylactic) in isolated herds.

Over 170,000 animals were vaccinated against ANTHRAX. Ten people died from eating infected meat. Mortality occurs in cattle, sheep and goats. BLACKLEG occurs in all Provinces except Eastern, Southern and Tanga. Reactors to tuberculin have been found in dairy herds in Tanga, Dar-es-Salaam, and the Central Breeding Station; of 979 cattle 10·11% were found to be infected. In other herds tested there were very few reactors. In the Southern Highlands TB. persists in some areas.

FOOT AND MOUTH DISEASE is endemic. In the majority of outbreaks virulence was low and indigenous cattle were only mildly infected. A highly virulent outbreak in the Northern Province proved to be due to type 'O' virus. Only mild forms of "LUMPY SKIN" DISEASE occurred. Other diseases mentioned were HELMINTHIASIS in young animals; BRUCELLOSIS, CERVICO-VAGINITIS AND EPIDIDYMITIS, and HAEMORRHAGIC SEPTICAEMIA; in dogs, DISTEMPER, "HARD PAD" DISEASE, sarcoptic and follicular MANGE. Distemper and rabies (Flury strain) vaccines were used extensively.—J. A. GRIFFITHS.

ANON. (1955). **FAO. Report of the third FAO meeting on livestock production in the Americas, held at Buenos Aires, Argentina, 18 to 30 April, 1955.** pp. 170. Rome: Food and Agriculture Organization of the United Nations. [Mimeographed.] **669**

The work of the Meeting is divided into three main sections:— The improving of livestock by breeding; by nutrition and management, and by disease and parasitic control; the present position of the poultry industry and its improvement; and the improvement of services for livestock.

Several recommendations were made regarding animal climatology, such as extending the compilation of information on tropical adaptability of different breeds to cover adaptability to different environments, especially those found at high altitudes.

Regarding improved nutrition; insecurity of land tenure was discussed along with the conservation of forage, *e.g.* the storage of silage, the preparation of hay, and nutritional deficiences.

Discussion on disease control was limited to foot and mouth disease, the control of parasites and diseases transmitted by parasites, and brucellosis.

One recommendation for the control of F. & M. disease was that governments should consider the integral and systematic vaccination of susceptible species together with sanitary police measures which might, if necessary, include the slaughter policy.

It was also recommended that governments should intensify the official supervision of therapeutic agents used for the control of parasites.

This Meeting provided what was really the first full scale discussion on the poultry

industry. It included the study of problems relating both to the highly specialized type of industry and the handling of poultry in small flocks as a supplement to the farm operations.
—D. S. RABAGLIATI.

SERGENT, E. (1955). Rapport sur le fonctionnement de l'Institut Pasteur d'Algérie en 1954. **[Report on the work of the Pasteur Institute of Algeria in 1954.]**—*Arch. Inst. Pasteur. Algér.* **33**, 150-194. **670**

This report deals with, among others, the results of B.C.G. vaccination; malaria; bovine piroplasmosis; anti-scorpion serum; spirochaetoses (*Sp. hispanica* has been found in the brains of 1% of sewer rats in Algiers); and the biology of microbes. Morphological variations of *Chromobacterium prodigiosum*, produced by modifying the physico-chemical constitution of the culture medium, are accompanied by variations in biological behaviour.
—W. R. BETT.

See also abst. 416 (W. African Inst. for Trypanosomiasis Research).

BOOK REVIEWS

MANNINGER, R. & MÓCSY, J. [Universitätsprofessoren in Budapest]. (1954). Spezielle Pathologie und Therapie der Haustiere. Erster Band. Infektionskrankheiten. Zweiter Band. Organkrankheiten. **[Hutyra & Marek's special pathology and therapy of domestic animals. Vol. I. Infectious diseases. Vol. II. Diseases of organs.]** pp. xii+868 & xii+1007. Jena: Gustav Fischer. 10th (German) Edit. DM 123. **671**

Since the publication in 1945 of the ninth edition, the death of J. Marek has left R. Manninger and J. Mócsy as editors of what was originally Hutyra & Marek's great work. They have incorporated the many advances which have been made in veterinary science during the past nine years by the inclusion of much new material and the re-writing of many sections. As a result of the adoption of a more concise style and the elimination of superfluous or outmoded detail, the number of pages little exceeds that of the previous edition. Many alterations have been made in the arrangement of material and the classification of diseases, to suit modern concepts. Literature up to the end of 1952 has been incorporated; it is useful to find that in this, unlike the present English edition, the date of the source is usually quoted after the author's name.

New sections in volume I (infectious diseases) deal with distemper-like diseases of the dog and fox, rickettsial infections, virus abortion of sheep, contagious gastro-enteritis of uncertain aetiology in pigs, leptospirosis, listeriasis, *Vibrio fetus* infection, and Glässer's disease of piglets. Among the sections which have been extensively revised are Aujeszky's disease, fowl plague (including Newcastle disease), swine paratyphoid, toxoplasmosis, louping-ill, Teschen disease, brucellosis and trichomoniasis. Accounts of equine infectious anaemia and infectious diseases of the central nervous system have been transferred from volume II (diseases of organs) to volume I. The section on protozoal diseases has been abolished, these diseases being accommodated under the headings "acute and chronic infectious diseases".

Re-arrangement of material is also obvious in volume II (diseases of organs). Diseases of the nervous system, nephritis, and leucosis in particular have a simplified and revised layout; the section on neuro-endocrine and metabolic disorders has been re-written and incorporates a new heading, "diseases of endocrine glands". Additions include oedema disease of pigs, haemolytic anaemia in newborn animals, and bracken poisoning. Revised sections include porcine atrophic rhinitis, the haemorrhagic diathesis, rickets, and the treatment of helminth infestations, coccidiosis, blackhead, and milk fever. The chapter "functional nervous disorders" has been abolished and its contents re-classified under more appropriate headings.

Therapeutics have been brought up to date by the inclusion of antibiotics and the newer sulphonamides, anthelmintics, parasiticides (D.D.T. and B.H.C.), and vaccines. The multi-lingual lists of synonyms given under the main headings of most diseases now incorporate Russian, but unfortunately many of the Russian names are mis-spelt. Some of the English synonyms given are obsolete and need revision. A few changes have been made in the nomenclature of bacteria, protozoa, and helminths. The spirochaetes have been renamed *Borrelia* or *Leptospira* in accordance with modern practice.

The new edition of this invaluable work is a great improvement on the previous edition; the need for a new English edition is clearly shown.—R.M.

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   R. Gwatkin, *Animal Diseases Research Institute, Quebec.*
2. **ANIMAL RESERVOIRS OF HUMAN LEISHMANIASIS AND TRYPANOSOMIASIS**
   C. A. Hoare, *Wellcome Laboratories of Tropical Medicine, London.*
3. **NUTRITION AND FERTILITY IN THE BULL**
   D. E. Tribe, *School of Veterinary Science, University of Bristol.*
4. **LATENT VIRUSES**
   A. W. Gledhill & J. S. F. Niven, *National Institute for Medical Research, London.*
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   K. L. Blaxter & R. F. McGill, *Hannah Dairy Research Institute, Scotland.*
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